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ORCHARD and FARM

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JANUARY 6, 1924

Scaling the Heights on a Mountain of Prunes

It's an Arduous Trail

By ALBERT J. MASON

LARGE scale fruit production involves difficulties that would terrify any but the brave and well-financed. Yet, with a "little matter" of 500 tons of prunes now on hand and complete returns from the 1922 crop not yet received, the Swall Land Company of Tulare County is planning to set out an additional acreage of deciduous fruit this season. Which is another way of saying that Arthur Swall, the manager of this big ranch, is not easily panic-stricken.

"FULL of prunes," is a stock phrase—but have you ever heard it applied to a building, say 30 by 100 feet? And this building, mind you, is not an association packing house, but what the owner refers to casually as a "bin."

"We have another smaller bin, but that holds only about 100 tons," confessed Arthur Swall rather apologetically.

We were standing on top of a mountain of prunes, upon which we had climbed at our guide's suggestion. Prunes to right of us, prunes to left of us, prunes everywhere.

"This pile did look larger," he added, "but it's pretty well settled now. I should judge we had about 400 tons here."

Swall stooped and gathered up a double handful of the fruit. "These are all Robe de Sargents," he explained. "A very high percentage of them will run 40-50, and that is the reason we favor this variety. The trade demands large prunes and the Robes, in this district, seem to us the best-paying proposition. We have this year about 100 tons of French prunes, however, and we also raise Tragedy plums for fresh shipment, our orchards being inter-planted to facilitate pollination.

"I certainly hope we come out better on other products than we did on those Tragedy plums this year. They lived up to their name all right, as far as our shipments were concerned. I figure we would have been just $5000 ahead if we had dumped them and let them rot. Our sales sheets were composed largely of red ink." Swall blames high freight rates and unsatisfactory transportation conditions in part for the Tragedy tragedy, and is taking an active part in the fight to secure more favorable rates to the East.

PLANTING NEW ACREAGE

It is characteristic of the man, however, that he does not allow himself to become discouraged as a result of this year's experience. "We may have better luck another time," he points out. The Swall company is planning to set out this year eighty acres of orchards, including "cots," freestone peaches, plums and early apples, all for shipment to the Los Angeles market. Mr. Swall believes the phenomenal growth of Los Angeles will continue, resulting in increasing demand for these fruits at good prices. "The rising cost of orchard property near the city, the limited close-in area of irrigated land and the growing population, all spell opportunity for the San Joaquin Valley, in my estimation," says Swall. "These constantly-increasing hordes of people must be fed. Even our land is high enough, to be sure, but our production per acre in proportion to land values as compared to other districts is a point in our favor (Improved orchard lands in the vicinity of the Swall ranch are valued at from $700 to $1500 per acre, depending on various factors.)

This interesting orchard property was founded nearly forty years ago by the father of the present owners, three brothers. The brothers, who now operate it as an incorporated company, have carried out a pre-arranged program of expansion. The original 300 acre property has grown to 900 acres, of which about 500 acres is in prunes, practically all of which will be in bearing by next year. Canning peaches 100 acres is devoted to grapes, mostly Thompsons and Malagas. Some alfalfa also is raised.

Pork production is an interesting side line. It is customary to keep several hundred head of hogs, which have the run of the orchards after the harvest season, picking up a good deal of culi fruit. Later they are confined and finished off on corn which is raised on the ranch, threshed and ground. At one time upwards of 700 head of hogs were maintained, but the herd now numbers less than 200. The hogs are marketed through the Farm Bureau auction department which has been such a great success in Tulare County. Needless to say, Swall is an active member of the Farm Bureau.

The visitor is impressed by the stock barns and corrals, the latter among the best we have ever seen. He wonders at the presence of this fine equipment, now idle, and is informed that at one time cattle raising was one of the principal activities. More than 300 milch cows, alone, once had their home on this ranch. But, although the orchards and fields unquestionsbly benefited greatly by the large quantities of manure thus made available, this part of the business was abandoned because of labor conditions.

THAT LABOR PROBLEM

And here we have the crux of the many problems which might tend to keep the operator of a big ranch awake nights. Labor, spelled with a capital L—scarce when most sorely needed, high-priced at all times and mostly inefficient—well, Swall shows us what it means to him when he says "If it weren't for tractors, dehydrators and other labor-saving equipment, I would be inclined to throw up my hands and quit."

Not that some good men are not available. There are several employees on the Swall ranch who have been at work from five to ten years, and one man who has been employed off and on for more than twenty years. Two of the tractor drivers were laid off this season for the first time in nearly five years because of the necessity for economizing. And that is a pretty good indication of the recent trials of the San Joaquin Valley fruit grower—which, by the way, are not yet past (Continued on page 9)

The two youngest members of the rancher's family and Bing, their canine friend. The young man has worked here 20 years.

Partial view of the Swall dehydrator. It cost nearly $30,000 and is one of the largest in the State.

Here is Arthur Swall with a little slice of his prune mountain. These Sargents were cured in a dehydrator

This is the ranch office, which contains the latest and best equipment.

ORCHARD *and* FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
JANUARY 6, 1924

"Angora Agriculture"—New Northwest Industry

Mohair Goats Offer Practical Aid in Clearing Pacific Slope Cutover Lands, Controlling Weeds and Maintaining Soil Fertility

By A. C. GAGE

Prominent Goat Authority and Editor Angora Journal.

IN States where climatic conditions make pasturage and browse plentiful, Angora goats are being utilized in various useful ways. Clearing land of brush has been accepted as their chief function; but when they are recognized at their true value and accorded the same care as sheep, they become an aid to agriculture in many ways.

Over a period of a dozen years. William Riddell and Sons, Oregon farmers, have found that Angora goats were more profitable in building up grain lands, increasing the crop yield and in cash returns from mohair produced than any other class of livestock.

In 1923, only seventy-seven days were required to grow wheat on their farm The writer photographed two adjoining fields on July 16, during wheat harvest. Goats had been pastured on these lands until May 1, then transferred to open pasture and wood-lot browse, while the grain was growing. After harvest they were at once turned on the stubble.

GOATS INCREASE YIELD

The two fields are adjoining and the soil is the same in each. Yield on the land "goated" ran twenty-five to thirty bushels to the acre; on the land not so pastured the yield was twelve to fourteen bushels. Rape was sown with the grain seeding. The goats were put on as soon as the seed sprouted and kept down the weeds as well as the springing grain until the stalk began to run up and the plants were well established.

In the grain-growing season the rape remains somewhat dormant, but with the first fall rain furnishes luxuriant green feed which lasts throughout the winter and supplies a turnover of humus for the next plowing.

Tramping the soil after seeding, the goats cover seeds not fully turned under by the drill. Their droppings fertilize the soil, their hoofs mulch it and pack the seed-bed.

Scarcely any weeds developed and the grain grew so rapidly and high that the Riddells wondered if they could save it in good position for the harvester because of the danger of the crop being blown down. It must be understood that this is not the result of a single season's work by Angora goats, but is the condition of the land after several years of such soiling and crop methods.

Edward G. Riddell states that the land has become mealy and mellow, losing its slaty, slick appearance. He states:

"There is no animal on the farm that has a better future in a financial way than the Angora goat, if properly utilized, and there is no better agricultural worker in this country, if given a square deal. It has proved that the Angora goat is the peer of any animal in building up cultivated land."

Investigation over a period of years shows that Angoras do not injure growing grain. For weed eradication, they have no equal. Cornflower and plantain do not mature seed when there are goats in the field, because these industrious little animals clip the plants off to the last sprout. Goats work on the taller weeds, letting the smaller growth get well rooted before it is grazed.

They help pack the ground and do not weigh enough to injure the springing seed in its germination. Proofs of Riddell's statements are: Crops increased; land made richer, more readily worked and friable; bigger and better goats, with larger clips of mohair.

With present world supplies of mohair reduced by war conditions in Asia Minor, which have decimated Anatolian herds; diminished herds in South Africa, caused by restricted markets during the war, disease and drouth, there exists a good and growing market for American growers of mohair.

Gradual growth of the industry is shown by the last census. While sheep decreased in the United States—18,000,000 in the 1910-20 period—goats increased at an average rate of 60,000 each year.

Unlimited areas available for goat raising are to be found in the far West. In the States of the Atlantic Coast, abandoned farms are being restored to good condition by use of Angoras in clearing brushbound fields and making them again productive.

These fine Angora bucks stand ready to solve many vexed agricultural problems—Give them a chance!

Forest lands are being cut over in the Northwest at the rate of 180,000 acres a year, in Washington; and 100,000 acres in Oregon. Little of this land is being utilized, yet nearly all of it, whether rocky or cultivable, is suited to Angora goats. Reforestation is being considered by Congress and is declared to be an important national problem; yet millions of Angora goats could be put to work profitably on these immense cut-over tracts, now lying idle and unproductive.

Whatever the areas of cut-over lands may be (estimated at over 200,000,000 acres) in the United States, the acreage constantly is being increased by lumbering operations and not one acre in fifty is being utilized after the timber is taken off.

Much of this land is not cultivable, but practically all of it is available and suitable for goat range, whether rocky or otherwise. Management, however, is a vital factor.

The statement that goats can be turned out on such lands and left to take care of themselves is a fallacy.

Goats require flock supervision. Their fleeces get caught in wild growth and the animal perishes if not released. In browsing, they stand upright, reaching leaves and twigs to a height of six feet. A forefoot may be caught in the forks of maple, hazel or other tree and the animal die a lingering death.

In such grazing lands, either fences or herders are needed and flocks should not exceed a few hundred in one bunch. They are subject to few diseases, are hardy grazers and with average care yield much mohair and many kids.

GOATS HELP HOMESTEADERS

Many a homesteader has pulled through with the help of goats in clearing land. Their flesh is edible, if we eliminate the bucks and stags. The mohair returns profit annually and Angoras are invaluable land-clearers—pioneers that go ahead of other livestock.

Without doubt, this much derided farm animal, subject for jokes and condemnation down through the ages, has merits not generally realized. But his tribe increases, his good work goes on and sooner or later his value will become apparent.

Fabric mills on the Atlantic Coast are turning out each year handsome and durable fabrics from the raw material, mohair supplied by the Angora goat. Car plushes; upholstery fabrics for hotels, theaters, lodge-rooms; suitings for men and women; hair goods—such as wigs, toupees, dolls' hair—are made from mohair. Imports annually are in volume equal to domestic production. We produce each year 8,000,000 pounds of mohair.

What better evidence could be given to illustrate the opportunity for extension of goat-raising in America? Equally adaptable to arid land grazing, clearing up cut-over lands or increasing yield from cultivated areas, the little fleece-bearer, with his lustrous, silken covering, his industry and his record of performance, is making a bid for recognition.

Can we get the goat off the comic section and into the industrial page?

California Wool Growers' Association Is Doing Big Things

Ambitious Program Pushed Vigorously—Coyote Slated for Death—Lamb Market Stabilized

LITERALLY born of necessity, and nurtured carefully through many "lean" seasons by a loyal group of supporters, the California Wool Growers' Association, affiliated with the national organization, has just completed a year of big accomplishments. Fred A. Ellenwood of Red Bluff, who has always been one of the "prime movers" of the organization, was for many years its head and is now vice president. A. T. Spencer of Cranmore is president and Frank N. Bullard, Woodland, treasurer.

W. P. Wing, who, as secretary, presides over the office at San Francisco, puts it this way: "Yes, we have accomplished some things, of course, but there's so much to be done, we feel we've scarcely made a start." And he enumerated briefly the following more important planks of the co-operative platform.

(1) Insuring the receipt by every member of authentic and up-to-the-minute market quotations on prices of sheep and wool.

[illegible] Development of a lamb trade to [illegible] care of the ever-increasing number of early spring lambs.

[illegible] Obtaining better transportation [illegible] and accommodation for shipping lambs and sheep.

[illegible] Establishment of a traffic and [illegible] department to check railroad [illegible] attend to freight claims route [illegible], etc.

[illegible] [illegible]ration of a legal department.

[illegible] [illegible] legislation beneficial to the sheep industry, and preventing the [illegible] of laws detrimental to the prosperity of the industry.

[illegible] [illegible] of sheep diseases.

[illegible] Extermination of predatory animals.

[illegible] Maintenance of an Exchange Bu[illegible] list stock for [illegible] for sale or [illegible] for rent and [illegible]

(10) Holding a ram sale each year to facilitate bringing together buyer and seller with the least possible amount of trouhle and expense, and incidentally to introduce generally better breeding stock.

BETTER BREEDING ENCOURAGED

(11) Maintenance of an information bureau for the collection and dissemination of correct information concerning the sheep industry. Correcting misleading or false reports and providing means for the public to obtain correct and unbiased information.

(12) Educational work, such as holding wool demonstrations, sheep breeding demonstrations, grading, etc.; co-operation with the University in experimental work.

LAMBS ARE DISTRIBUTED

(13) General welfare work.

Perhaps the most remarkable accomplishment of the association so far has been in connection with marketing lambs. Old time sheep men know only too well how the San Francisco market, particularly, has been subject to disastrous gluts which kept the grower in a state of constant uncertainty.

As a result of the efforts of the association, however, California live lambs for the first time were distributed during the heavy shipping season over eight or nine different markets, including Chicago and river points, while dressed lambs in refrigerator cars were shipped to Boston, Philadelphia and New York, and some to Portland and Seattle.

More than 300,000 lambs went out of the State during this period and 400,000 were consumed locally.

As a matter of fact, according to Secretary Wing, California consumes more lamh than is produced in the State, but during a three-months period from the middle of March to early June, nearly three-quarters of a million lambs must be marketed. This has resulted heretofore in overtaxing home markets.

In connetcion with its marketing work, the asociation already has accomplished much towards keeping its members posted on market prices. In co-operation with the California Cattlemen's Association, and through the financial help of the State Department of Agriculture, the wool growers have prevailed upon the United States Department of Agriculture to place representatives at the two principal local markets. In addition, special wire service has been inaugurated. Now by 9 a. m. (Pacific Coast time), detailed prices and comment of that day from Omaha and Chicago are broadcasted by the Naval Radio Station, San Francisco.

WAGING WAR ON COYOTES

The predatory animal problem has been more difficult to solve because of the difficulty of getting quick action from Government agencies. It is pointed out that the Federal Government should appropriate sufficient funds for the work in mountain counties because of the 100,000,000 acres of land in California, the Government controls 31,101,749. In each of the mountain counties, the Government controls one-fourth to three-fourths of the land.

At least ten California counties have appropriated from $500 to $5000 each for predatory animal control, and the present plan is to spread Government and State funds over the counties which co-operate.

In many respects the coyote problem is one of the most serious facing the sheep industry of California today. A number of big operators are said to have quit the business because of losses from the various wild animals that prey upon the flocks.

It is highly important, therefore, that this good work be carried on. The least "let-up" undoes much of the good already accomplished, because the animals increase rapidly.

Every reader of ORCHARD and FARM is urged to join the warfare upon predatory animals, and if there is a sheep owner, great or small, in the State, who is not a member of the California Wool Growers' Association, let him lose no time in affiliating, for he cannot make a better investment than the small fee required as dues. (Address W. P. Wing, Secretary, California Wool Growers' Association, Santa Fe Bldg., San Francisco.)

No better description of the spirit of co-operative effort has reached us than the concluding paragraph of Secretary Wing's report read at the last annual meeting:

"Self has been forgotten in an earnest effort to work for the good of all. Many members have sacrificed time, energy and personal gain in order that the foundation for a bigger and stronger organization might be established in the right way. Mistakes are easily made. Your representatives are doing their best, but in steering a straight course, they need the advice and counsel of all. Only by united effort can progress be made and prosperity assured.'

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE

FRIENDLY PHILOSOPHY

By THE EDITOR

I WONDER if we all appreciate our county agricultural agents, or farm advisers, as we are accustomed to call them, and take full cognizance of what they do for us.

It would be difficult to find a finer, more earnest group of men than these who labor so hard and unselfishly for the welfare of their respective communities. We know only a few farm advisers in other States, but we will eat our own sour dough biscuits if any State can produce the equal of California's extension service workers!

From the "Imperial" domain of Garthwaite and Ellis in the South to "Doc" Logan's farthest north territory (Humboldt), these picked "shock troops" are absorbing more shocks every day than all the rest of the agricultural army. They have to be physically fit or they couldn't stand the strenuous life they lead.

AND FIGURES DO NOT LIE!

Listen to this from the annual report of Connor, Tulare County (we pick on Farm Adviser Connor because he is on of the "boys" whose hair is getting a bit gray and who—all appearances to the contrary notwithstanding—insists he is not quite as active as some of the younger members):

"During the year the farm adviser force made 898 farm visits at which some information was given farmers relative to their work. More than 1340 persons called at the office for information and 615 called by telephone. Three hundred and fifty-one days were spent in the field.

"Center meetings attended numbered 127. Nearly 6000 persons were present at these meetings. At the grand rally on July 4, 8000 were present. Seventy-seven other meetings, including demonstrations, were held and attended by 2854 persons." And this is less than half of it!

A FEW ITEMS NOT OFFICIALLY LISTED

The above are just cold figures picked at random from the official report of one county. You should see the data relative to Bob Hodgson's Los Angeles County office, where six men are kept busy!

Just dry statistics these—and they make no mention of rain and mud and punctures and stalled cars and blistering sun—midnight oil and unreasonable human beings and "fool" questions—all incidents in the life of the farm adviser.

LET US MEET THEM MORE THAN HALF WAY

We are too prone to criticise these fellows for minor faults when they're trying their darndest to help us. We are not wise enough to take full advantage of the service they are able and willing to render.

If we had to get along without them for a while, maybe we'd realize what they are doing for agricultural California. From Prof. Crocheron, who is generalissimo of this branch of the service, down to the newest "rookie" who has yet to dig his flivver out of a mud-hole—these men are doing the thing that the sky-pilots tell us is most worth while, helping others.

To those who are prone to find fault we commend serious consideration of Fresno's new motto: "You can't saw wood with a hammer."

What's New?—Keeping Abreast of Agricultural Progress

Advertising Holstein Milk

HOLSTEIN milk producers have erected fohrteen billboards 30 feet long and 12 feet high along California highways. These huge signs are placed near cities and advertise the superior value of Holstein milk.

The first 35 sires sold in the present Stanislaus-Merced purebred bull campaign were Holsteins.

Sell Bumper Almond Crop

SEVEN-eighths of the largest almond crop ever produced in California was marketed by the middle of December, according to the California Almond Growers' Association. The entire crop amounted to 8000 tons.

The unsold nuts were mostly of odd varieties and are being disposed of in shelled form, as far as possible. Many of them do not "shell out" well enough to sell at satisfactory prices, it is claimed.

Growing Cauliflower Seed

SAN DIEGO COUNTY is coming forward prominently in the growing of cauliflower seed. For many years cauliflower seed has come from Denmark and Belgium the former especially supplying us, and the trade had come to regard these countries as the only source of supply, until confronted with the California product. Eastern seedsmen who have handled the San Diego County seed have stated that it excels the foreign article in purity and germination.

Advocates Grain Inspection

CALIFORNIA is the only important grain producing State having within its borders natural terminal markets, which does not have compulsory grading and weighing laws.

"We are the leading State in the standardization of our fruits and the establishment of shipping point inspection for fruits and vegetables, but we have sadly neglected to give our producers of field crops the protection to which they are entitled," declares G. M. Hecke, director of the State Department of Agriculture.

Branding a Thousand Roosters

ONE thousand certified White Leghorn roosters from pedigreed birds, recently were branded by James Dryden for the Santa Cruz Trapnesters' Association. An official seal was placed on the leg of each certified bird. This mark identifies the cockerels, all of which are from heavy laying hens.

Dryden, who is one of the world's greatest poultry authorities, is much interested in the work of Santa Cruz trapnesters and is enthusiastic over the possibilities of their efforts to provide egg producers with stock of proved value.

California Vegetables Lead

FOUR of the ten leading vegetable counties in the United States are located in California, according to olericultural exports at the University of California. Among the ten, these four counties rank as follows:

Los Angeles, first; Imperial, second, Sacramento, fourth; San Joaquin, sixth.

The ten leading vegetables grown commercially in California are: Muskmelons, tomatoes, onions, asparagus, lettuce, celery, peas, cabbage, peppers, cauliflower and watermelons.

Destroying Camel's Thorn

WORK is now in progress for eradicating Camel's thorn, a new weed pest, in the Coachella Valley, where there are three known areas of infestation: 40 acres in Section 12, 35 acres in Section 2 and one-half acre in Section 24. Legal notices have been served on the owners, who are required to destroy these noxious plants.

The weeds have been cut down and burned and ground plowed. Thorough cultivation under the direction of Ethelbert Johnson, weed control specialist of the State Department of Agriculture, is expected to exterminate the pest.

Catnip Lures Wild Beasts

THAT common catnip, so pleasing to domestic felines, also has irresistible attraction for bobcats, lions and other wild members of the feline tribe is the discovery announced by members of the U. S. Biological Survey. Government hunters now use with great success a lure which includes oil of catnip and petrolatum.

The discovery was made accidentally by an official who approached a caged lion while holding in his hand a sprig of catnip and found that it affected the big fellow in much the same manner as it reacted upon the common house tabby!

Selling Eggs by Weight

FRANK J. SWAYNE, Washington poultryman, who recently sold eggs of standard grade for 60 cents a dozen, pullets at 43 cents and pewees at 25 cents figured that he received 40 cents a pound for the large eggs, 30 cents for the second size and 23 cents for the smallest ones.

Many poultrymen consider that little eggs are unfairly discriminated against under the present system of buying by the dozen. The above figures appear to bear out this contention, since a much smaller price was paid for egg meat in small shells as was given for the same product encased in large shells. As a rule, goods done up in small packages bring the highest prices—why does not this rule hold good with eggs?

Old Vineyards Coming Out

A CONSIDERABLE acreage of old, low-producing grape vines is being removed in Fresno County, according to Farm Adviser Benson. This, and the tendency to restrict new plantings, are cited as two beneficial factors resulting from unsettled market conditions of the past two seasons.

Los Angeles Stockyards Grow

PLANS for enlarging the Los Angeles Stockyards are being considered, to meet the demands of growing business. In spite of organized opposition, more than one-half the meat consumed in Los Angeles comes through this plant. The yards were opened Nov. 1, 1922.

Record Strawberry Yield

KERN COUNTY reports a yield of 10,000 boxes of strawberries to the acre. The berries were grown by J. H. Jordan of Wasco, which is coming to the front rapidly as a fruit section. The strawberry vines were mulched with straw, a practice which gave this fruit its name. The product of Jordan's acre retailed at 11 cents a box.

We Are Short on Pork

CALIFORNIA with its particularly favorable climatic conditions and abundance of hog feeds, which can be produced in practically all sections of the State, offers unexcelled opportunities for the raising of hogs," states an official of the State Department of Agriculture. "Thus far we have not produced enough pork for home consumption, and with an ever-increasing population more serious attention should be devoted to hog raising, which is branches of animal husbandry in this State."

Educating Almond Growers

DIRECTORS of the California Almond Growers' Association are planning an educational campaign, to show nut producers the advantages of cooperative marketing. Because of the unwarranted price cutting of dealers who bought nuts from nonmembers, the association was forced to reduce their opening quotations from one-half cent to one cent, entailing large losses to both growers and dealers. Speculators sold some varieties at three to four cents below association prices.

"THEY SAY"

C. M. CONNOR

C. M. CONNOR

Farm Adviser, Tulare County

ONE of the most important conditions in agriculture is the tendency of producers to become discouraged because of temporary market depression or other difficulties, and to abandon certain specialties for new fields of endeavor.

For example, I recall the time when hundreds of acres of good peach trees were torn out. A little later there was a regular wave of peach planting—in some cases by the very men who had abandoned the ship in time of stress.

Then we are all familiar with the prohibition scare which resulted in the destruction of many vineyards by owners who during recent years, would have given a great deal to have them back.

Now, because of temporarily unsettled market conditions and difficulty within some of the associations, many growers are undecided which way to turn, when probably the best thing they could do would be to stay with the thing they have started, provided they understand the business and have good properties under development.

Of course, there are conditions under which a change of plans is advisable, and it is possible to make this change gradually in many cases. For instance, there is a feeling here in Tulare County that walnuts afford better opportunities for the future than some of the deciduous fruits. But the soil that is really adapted to walnuts is limited. Much of this land already is producing prunes, peaches and other crops.

Some of the conservative growers now are inter-planting, figuring on having an income from their fresh or dried fruits, while the comparatively slow-growing walnut trees are coming into bearing. On the other hand some are unwisely planting walnuts and no [illegible] on land not really suited to this crop.

One of the outstanding developments here in Tulare is the great increase in vineyard acreage. Five years ago we had 30,000 acres of grapes, now we have more than 80,000. Observers who view this situation with alarm, however, are reminded that [illegible] has had a tremendous impetus recently. Furthermore, present market conditions will tend to increase this form of diversification and cut down orchard plantings. There's a silver lining to every [illegible] cloud.

Buying and Planting Fruit Trees

Seasonable Suggestions on Selecting Nursery Stock and Setting Out an Orchard.

By GEO. P. WELDON
Pomologist Chaffee Junior College of Agriculture

THERE never has been a time when nurserymen were exercising more care in the growing of trees than now. The planter can buy today with a high degree of assurance that the varieties which he orders will come true to name.

PROFESSOR WELDON

This is not, however, the only consideration in purchasing trees. Not enough attention is given by planters to the question of root stocks. The root system is more than half of the tree and if it fails to respond in the proper manner the tree will not do its best.

The subject of root stocks is a big one. It involves disease and insect pest resistance. Also resistance to nematode, or eel worm. For example: There are certain pear stocks that will resist blight to a high degree, stocks for the apple that will resist the woolly aphis and peach stocks which will resist eel worm.

In the case of the pear the Chinese stock known as pyrus usuriensis is known to be almost immune to blight; Northern Spy roots will resist woolly aphis, while apricot roots for the peach and apricot will resist eel worm.

It is not possible to go deeply into this subject in this brief article and it is only intended to point out the fact that the planter should have some knowledge of root stocks which are used in the propagation of his trees, as well as the stock which is used in the growth of the top.

PAYS TO BUY THE BEST

It is wise to purchase the finest trees obtainable from the best nurserymen. Don't take chances on the tree jobber whose business methods may be questionable.

Many a tree dies after planting because of exposure of the roots to sunlight and air. It is not possible to say just how much exposure a tree will stand, as this depends on a number of different things, the most important of which are temperature and sunlight.

A certain amount of exposure is unavoidable as trees are dug and hauled from the nursery, but a nurseryman should, first of all, be careful that roots are not exposed until severe drying out takes place; and afterwards, the planter should exercise like precautions.

Sometimes the nurseryman is blamed for the loss of trees from drying, when the planter was the guilty party. Both must do their part if the trees are to live and thrive.

In this day of automobile trucks it is possible to load trees and deliver them in the course of a few hours many miles away. This practice is fraught with dangers, unless the person who is doing the hauling exercises the precaution of protecting the tree roots by covering them with a canvas, or in some other effective manner. Two hours' exposure to drying wind and hot sun may be disastrous.

After trees are delivered to the planter it is to his best interests to see that they are heeled in immediately, either in an upright position or with tops toward the south. The soil should be packed about the roots as in planting and should be kept moist.

PRUNE ROOTS CAREFULLY

Most tree planters prune the roots of young trees slightly, the common practice being to remove all broken or damaged roots. This much at least should be done and more pruning often is desirable. When roots are crowded and twisted about each other a thinning out will facilitate their starting to grow.

The shortening of larger roots will induce the development of fibrous roots, which is the best type of growth since it possesses the maximum ability to feed the tree with the plant food elements of the soil.

A certain amount of pruning may be desirable to make the root system better fit the hole which is made to receive it. There can be no harm from reasonable pruning of roots and there is considerable evidence that it is a very important consideration than many planters have thought.

Poor packing about the roots, as a result of careless planting, are dangerous and may result in the death of the tree. These are apt to occur when trees are being planted in heavy soil containing clay. Under such conditions the soil should be packed about the roots and the planter being sure that all the roots and particularly the smaller ones are in contact with the soil.

In lighter soils the same care is unnecessary and water may be depended upon to settle the soil about the roots and crown with little or no possibility of spaces being left for air. It is a good practice, in all cases after the hole is partly filled, to pour in a small amount of water.

Under ordinary soil conditions it is best to plant trees so that the bud union is just above the surface of the ground. Where the soil is very light and sandy it is desirable to plant deeper. Peach trees do not show any injury from deep planting and in some situations they are planted with the bud union fully six inches beneath the surface.

There seems to be a well grounded opinion that too deep planting of the pome fruits, such as the apple and pear, may result in the death of the tree. Observations of a great many deeply planted peach trees indicate that this kind of fruit, at least, will stand deep planting. Since there is no advantage, however, in planting trees deeper than the ordinary way, except in special cases, the safest method is to follow this practice.

Red Top Studded Tee Fence Posts
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Consider carefully these important features of my Red Top Steel Posts.

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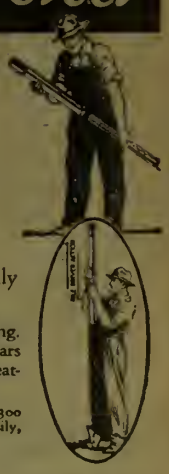

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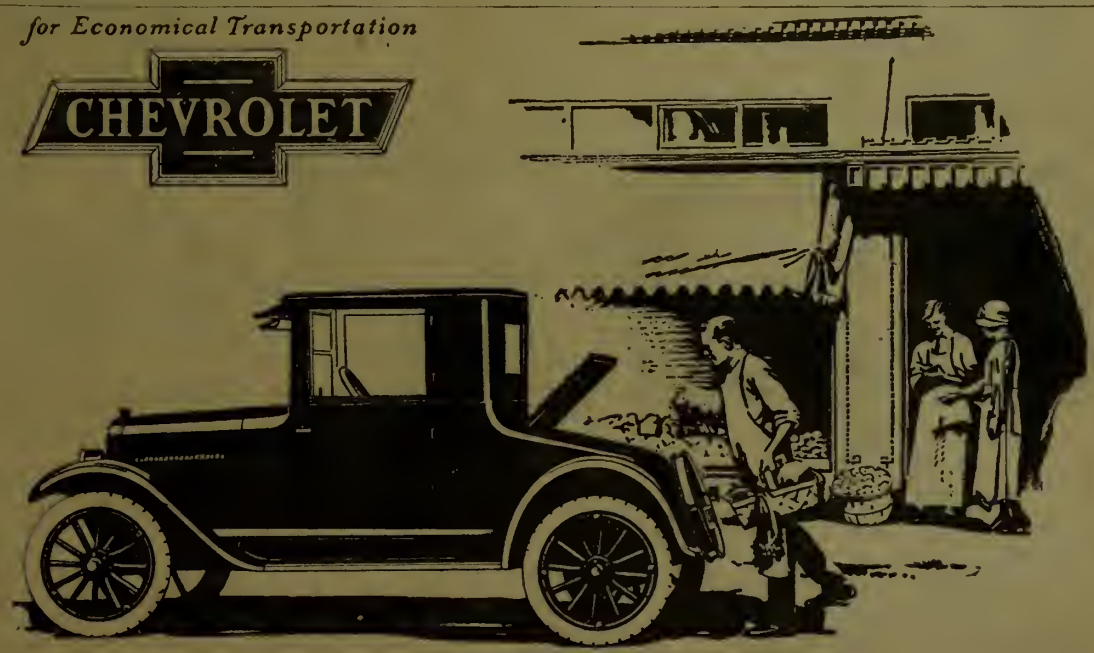
CHEVROLET



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SUPERIOR Sedan	795		

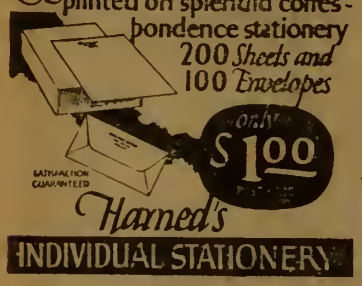
Chevrolet Motor Company, Detroit, Mich.
Division of General Motors Corporation

DANISH FARMERS DOING WELL

The universal prosperity of Denmark, where no one is very rich or very poor and there are only three large landowners—whose combined holdings amount to only 1500 acres—is in striking contrast to those countries ruled by industrialists, reports Farm Adviser Baade, who recently returned from a trip to Europe.

Extensive agricultural co-operation and a modification of the single tax system are given credit for favorable Danish conditions.

Your name and address neatly printed on splendid correspondence stationery 200 Sheets and 100 Envelopes



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Palo Verde Farmers Prospering

King Cotton Regains Throne, but Diversified Farming Most Profitable in the Long Run.

By W. S. GUILFORD

DIVERSIFICATION WINS.

Have spent some time recently in the Palo Verde Valley (Riverside County). It is a wonderful section, offering exceptional opportunities for the production of out-of-season specialty crops.

W. S. GUILFORD

The things that most impressed me were illustrations of the fact that there are certain fundamental things in agriculture that are the same on my ranch, on Palo Verde ranches and in every other place in the world where farming is done.

Diversified farming on good land; comparative small acreages well managed; the work done largely by the owner and his family; livestock having prominent part in the combination. Such projects always pay, taking one year with another.

The only way to lose on this kind of a proposition is to quit. Stay with it and average prices and average crops over a period of years will bring the owner out ahead. There will be lean years, of course but not often on all the crops grown.

The Palo Verde Valley has gone through many of the troubles which have been common to every newly developed section anywhere in the world, regardless of whether the land is irrigated or in the rain belt; whether the land is good or bad.

About four sets of settlers are required on any new farm before one "sticks" and becomes prosperous, as a general rule. This is especially true where the settlers do not diversify with livestock or dairying.

In the Palo Verde there are many fine, prosperous farms and some other areas that have been used for specialty crops. The farmers who have always done well, who have money in the bank and the most improvements on their land, are those who have alfalfa, cows, hogs and chickens.

Some also have grapes and apricots and grow melons; some cotton and corn and have silos. They have a steady income, something to sell every month.

COTTON PAYS FOR LAND.

Splendid cotton is grown in the Palo Verde. During the last boom in cotton prices large sums were paid for the crop. Many farmers planted all their land to cotton. Cows, hogs, fruit and vegetables—these brought too low returns, by comparison.

Then the price of cotton dropped below the cost of production, causing farmers to turn to livestock, alfalfa and other crops. Now cotton is a good price again and the cotton acreage is increasing rapidly. Palo Verde farmers see-saw from one crop to another, like potato and onion growers in the Delta district.

There is no greater gambler than the one-crop farmer.

But cotton, like rice in the Sacramento Valley, makes big money some years. It is estimated that the Palo Verde cotton the past season amounted to 15,000 to 20,000 bales, an average of close to a bale to the acre. It is selling at about 34 cents a pound, 500 pounds to the bale—$170 per acre. The seed is extra, to pay a part of the cost of growing.

This year's cotton crop will pay for some of the land on which cotton is grown.

While the average yield is about a bale per acre, there are fields which produced two bales per acre. Tony Seeley has sixty-one acres from which he sold over $15,000 worth of cotton.

Cotton has sold as low as seven cents a pound. Some farmers can grow it for twelve cents a pound, although during war time it cost as high as 25 cents a pound to produce.

FLOYD BROWN, IRRIGATIONIST

It's a pleasure and a privilege to meet a man connected with an irrigation enterprise who knows his business as does Floyd Brown, superintendent of the Palo Verde project.

Floyd knows the Palo Verde as well as if he had made it, knows every acre of land, every ditch, every structure and every kink in the Colorado River.

I have been from one end of the valley to the other with him and marvel at the things he has done and the plans he has for future development of the project.

Take silt control, for instance. The Colorado River water carries about 13 per cent of silt, sometimes more. Run through irrigation canals and ditches, this soon fills them up so completely there is no room left to put the cleanings on the banks, after a few years—to say nothing of the cost of doing the cleaning.

This silt would be a big asset for the land in some projects, but here the land is rich enough without it, having all been laid down from the river.

Brown runs water from the main canal into a big settling basin, which covers some 800 acres of low land, then takes it out into the canal clear. This land will be built up and made valuable; then another basin will be used until it is full. After that another basin, from which the silt can be flushed back in to the river, will take care of the problem.

Colorado River control, with standard current retards to guide the water away from points where it is encroaching on the levees and turn it into cut-offs, is a project Brown is handling satisfactorily.

EARLY APRICOTS PAY WELL.

I was in the Palo Verde country two years ago and heard some remarkable tales about the prices early apricots brought. Some sold as high as 25 cents a pound. Early "cots" sold again this year at high prices. They were grown on young trees and were the Newcastle variety.

Special crops in specially favored localities take the grower out of the routine farmer class and eliminate world competition. I like some out-of-season crops these "cots" really are delicious eating. If I lived in the Palo Verde I surely would plant some apricots. They come in bearing the third year. I would do mighty little pruning.

OTHER PROFITABLE CROPS

Eddie Weimers pulled out all his pomegranate trees from a twenty-acre orchard, except those on the checks and borders. Now these few trees bring from $1500 to $2000 per year.

At the risk of appearing to be a "booster" for the Palo Verde when we have Sacramento Valley land to sell, I will tell of the three crops of table grapes in one season that were grown here the past season.

The last ones brought 8 cents a pound in Los Angeles, although raisins were selling for a nickel. After one crop of table grapes is taken off the vines are pruned, new growth comes out and the new crop develops.

WATERING COUNTRY ROADS

When Palo Verde people say they have irrigated roads, the visitors smile. But when you see the roads you say, "That's fine."

It is a dry country and dust not mud is the bad factor in the country roads. Therefore they make a levee on one side of the road and one down the middle.

This leaves room on each side for cars and teams to pass. When one side gets badly rutted and very dusty, water is turned in.

When the road dries, a drag is run over it and it is made smooth as a floor. Then the other side is worked

Students overhauling Packard Twin-Six Motor.

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New National Automotive Bldg. Erected at a Cost of $300,000. Over $200,000 Worth of Training Equipment. Oldest Automotive School in America. Established 1905.

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Auto Mechanic	$10 to $15 week	Auto Electricians	$50 to $75 week
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Vulcanizer	$40 to $45 week	Taxicab Driver	$30 a week, tips

THREE years ago five million men were out of work—looking for jobs. TODAY—jobs are looking for men. Skilled labor is at a premium. Auto mechanics are in the big-pay class—and hundreds of opportunities are open to men who know autos.

National Automotive Guarantees to qualify you to fill any of the above big pay jobs. Almost every day we get calls for men to take jobs at once as garage mechanics, trouble shooters, battery experts, etc.—AND WE CAN'T FILL THEM. The demand is too great. A thousand men are needed at once to train quickly for big-pay jobs now open.

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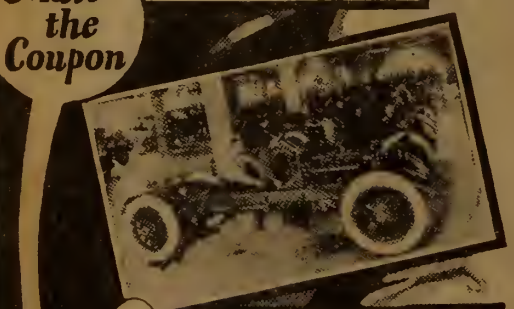
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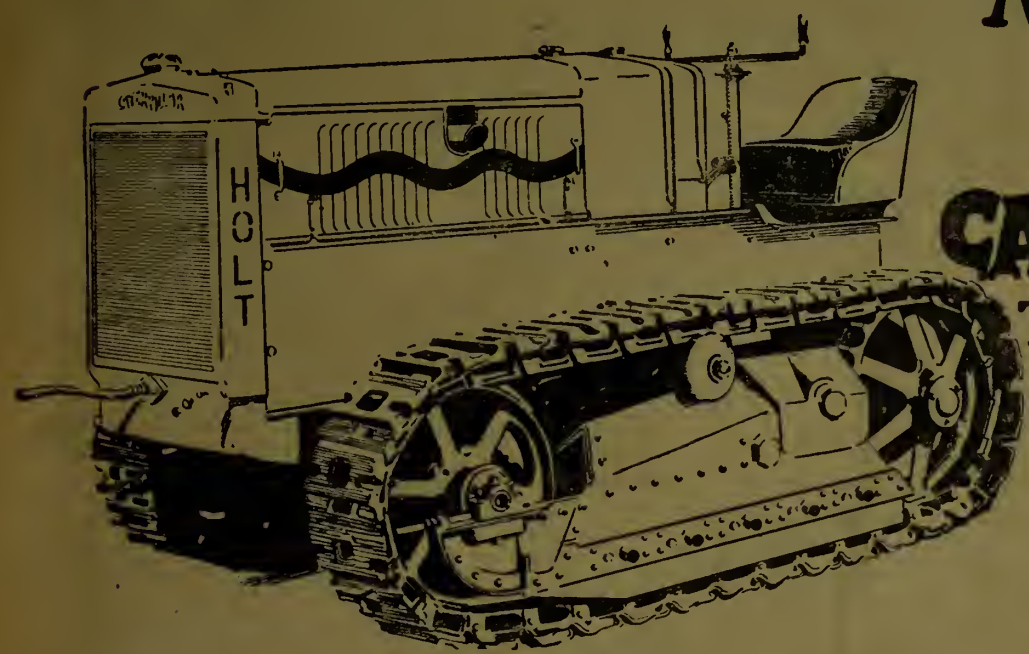
A worthy running-mate for the 2 Ton Model-same performance, same design-and BIGGER POWER

the NEW MODEL T29 CATERPILLAR TRACTOR



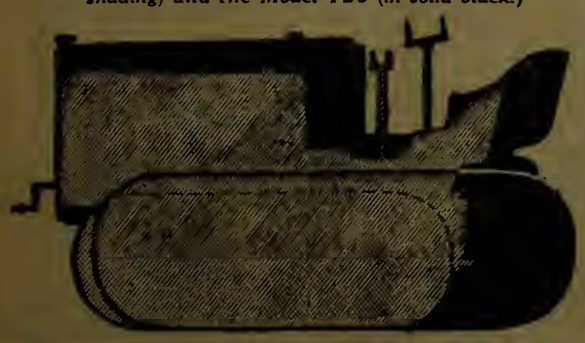
40 h.p. motor 25 h.p. at the drawbar

HERE, in the Model T29 "Caterpillar" Tractor, is a tractor like its running-mate—the 2-Ton Model—in every respect except power and size. Those who know the 2-Ton, by reputation or personal experience, could ask no greater assurance of quality of design or nature of field performance. And those who, on the basis of that assurance, have purchased T29s since this model was first announced last August, have found that it answers, in full measure, every expectation.

The 2-Ton and Model T29 are alike in materials and workmanship, alike in general design, alike in simplicity and endurance. Differing only in size and power, these two tractors completely cover the small and medium size power field. The 2-Ton continues to be "The Supreme Small Tractor." And now, for those who require or desire its greater power, the new Model T29 is *also* available, with its 10 more horsepower at the drawbar than the 2-Ton possesses.

Increased production permits immediate delivery of both models—the 15-25 H. P. 2-Ton Model, and the 25-40 H.P. Model T29. Write for complete information about these two tractors, or about the larger "Caterpillar" models—the 10-Ton and the 75 H.P. Write name on margin of page and mail.

For purposes of comparison, the sketch below shows the respective size of the 2-Ton (in shading) and the Model T29 (in solid black.)



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The total number of trucks used for this purpose is over 100 and the average load 5000 pounds. The haulage cost runs from 15 to 35 cents, averaging 25 cents. Twenty-five miles is the maximum distance the milk is hauled.

CALIFORNIA LEADS IN DEER

A recent estimate of the U. S. Department of Agriculture places the number of deer in national forests at 441,000 head, of which California shelters 180,000.

Peddling With Motor Trucks

ARIZONA fruit growers complain that their local market is demoralized by motor truck peddlers, who pick up loads of fruit in the country and sell in the city for whatever they can get, often at ruinously low prices.

Because of this unfair competition, dealers are unable to pay good prices to growers. The peddlers do not make enough to enable them to keep up their expensive equipment and soon are forced to withdraw from the game, but there are always plenty of others, unacquainted with the business, to take their places.

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SLEEPING THE CHICKS
23 Hours Per Day
STEVE'S SLEEP FORCING BROODERS will produce two-pound chickens in six weeks, forty days of which are passed in a sound sleep.

Electric lighted poultry houses have been used by the wide awake poultrymen for sometime to increase egg production. It has doubled the profit per hen per year.

Now comes the Sleep Forcing Brooders for raising chicks.

This system has reduced the cost of raising the chicks by half.

The chicks have twice the pep, eat much less feed and put on flesh twice as rapid.

STEVE'S SLEEP-FORCING BROODERS
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Floors are placed one above the other using a single heater for an unlimited number of floors, thus saving greatly on fuel which can be electric, gas or the kerosene lamp. These brooders are made wholly of galvanized sheet steel placed on a small truck which aids the operator in controlling the sunlight at feeding time.

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You will get plenty of eggs if your chicks come from
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2500 choice selected hens mated with cockerels from trapnested hens with records of 200 and better.
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CERTIFIED STRAWBERRY PLANTS—Leading varieties. Let us put you on our list of satisfied customers. We are growers, not brokers. Write for samples and prices. J. R. & S. G. MARKS, Canby, Oregon.

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WANT TO HEAR from owner having farm for sale, give particulars and lowest price. JOHN J. BLACK, Chippewa Falls, Wisconsin.

CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

POULTRY *Pointers*

By W. J. DRYDEN

SELECT COCKERELS NOW

If the males for next year's poultry breeding operations have not been selected, it would be well to give this prompt attention, in order to insure against having to "take what is left."

Much of the responsibility for the size and number of eggs laid by next year's pullets rests with the cockerels. Not only should a maximum amount of health and vigor be looked for, but the birds should be free from standard disqualifications which will interfere with their value as breeders. Time is well spent in investigating as to the health and productivity of the flock from which the birds come.

KEEPING EGGS CLEAN

Preventing a large percentage of eggs from becoming dirty is a problem that poultrymen should carefully consider. Much can be done to cut down the percentage of "dirties" by gathering eggs two or three times a day, keeping the hens indoors during wet weather until the laying hours are over and by keeping the nests, house and yards dry and clean.

CAUSE OF POULTRY FAILURES

The number of failures in poultry farming is getting larger and larger. Not long ago I asked a former army general the cause of this failure.

"Success always follows continuous, constructive and progressive thinking and action."

The general also said many failures are due to unnecessary equipment. He advises making the improvements that can be afforded and waiting for others until the necessary capital is acquired.

This man made a success of the business of war and now is running a successful stock farm. Before the war he worked out the S. A. T. C. system of training, but it was rejected. He was ahead of the times by several years and is keeping ahead in the same way on his farm.

CONTINUOUS PERFORMANCE

The future problem in breeding will not be to produce hens that can lay 300 eggs a year, but to breed those which will lay 200 a year for three years. The hen which can continue to lay at a high rate for several years is of far more value to a poultryman than a one-year high record hen.

VALUE OF ELECTRIC LIGHTS

It is doubtful if the use of electric lights will increase the production of a flock over the entire year, but it is true that the production will be increased during the winter months, when eggs are high priced.

One successful poultryman told me that he found the health of breeding stock was improved by keeping lights on them long enough to give a twelve-hour day. He did not find any difference in annual production.

DIFFERENCE IN PEDIGREES

An interesting experiment is being tried by J. A. Hanson at Corvallis, Oregon. Hanson has several houses of exceptionally high pedigree hens and another lot of hens of the same blood line, but of not such high pedigree.

The highest pedigree birds are laying better than 10 per cent more eggs than the other flock. This would indicate that there is a vast difference between pedigrees. Just because a bird is pedigreed for high production is no reason for being satisfied with the stock.

SIZE OF CHICK FLOCK

The question often is asked, what number of chicks successfully can be brooded in one flock? While it is true that the smaller the flock—to about 300—the better the results will be, it also is true that for commercial purposes it is out of the question to brood chicks in less than lots of 1000. Almost any sized flock, however, can be brooded with success, if the conditions under that system are satisfactory and proper management methods employed.

Keep Pigeons Confined

IN answer to an inquiry from Mrs. Edward D. Carter, Kern County, would say that the main trouble [illegible] keeping pigeons and chickens together is the danger of the former [illegible] the latter. Many of the [illegible] of poultry diseases are spread [illegible] cons and I doubt very much [illegible] that may be derived from letting them free range would offset the disease-spreading danger that they are almost sure to do. W. J. DRYDEN

SAVING ON FERTILIZERS

It is estimated that the Farm Bureau saved its members $200,000 last year by pooling fertilizer orders. Three giant pools now are being formed in the Mississippi for the purchase of nitrate of soda, acid phosphate and mixed fertilizer. Last year 1[illegible] tons of nitrate of soda was purchased co-operatively and 1[illegible] tons of acid phosphates.

LIMING LARGE ACID AREAS

For the purpose of neutralizing acid soils, 627,000 tons of lime and limestone were used in the past year by 48,000 farmers, who wished to plant legumes, according to recommendations of the U. S. Department of Agriculture.

You can raise silver foxes [illegible] than a dozen chickens would [illegible] furnish complete data [illegible] instructions. We [illegible] you with guaranteed pure [illegible] stock. Only small investment required. [illegible] thousand dollars a year. Write for complete illustrated FREE book today. Dept. A.

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Full of information about the feeding of chicks, culling of hens, etc. Tells how to keep hens healthy and make them pay. Worth dollars to any poultry raiser. Sent for 6 cents in stamps to pay postage. G. E. Conkey Co., 6538 Broadway, Cleveland, O.

Big Money in Poultry. LEARN HOW To feed, house and Breed. How to Secure High Egg Yield. How to Hatch and Rear Poultry Successfully. Oldest, Largest and Best Poultry Paper. 4 Month Trial Subscription 25c. American Poultry Journal, 307-523 Plymouth Ct., Chicago.

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POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, California.

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SOUTH America Colony Land. Best on earth. $2.50 per acre, time payments, no taxes, no winter, good markets. Booklet "Opportunities," 50c, literature free. BOLIVIA COLONIZATION ASSOCIATION, Portland, Ore.

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FARM IMPLEMENTS FOR SALE [illegible] of agricultural team planters [illegible] separator K[illegible] and [illegible] tractor [illegible] all good condition [illegible] at Beverly Hills [illegible] Supt. or phone [illegible] for [illegible] tion and prices. ROBERTSON LAND [illegible] COMPANY.

NEW and rebuilt [illegible] prices. Call and [illegible] CO., 114 S. Los Angeles St., Los Angeles.

BOOKS FOR FARMERS

FREE [illegible] Contains poultry [illegible] ruled pages for the [illegible] want [illegible] here a [illegible] record will be [illegible] EAGLE MILLING CO. [illegible]

"THE HOME CALLER" [illegible] of Pomona [illegible] California [illegible] and new [illegible]

BOOKS for farmers [illegible] bound books [illegible] $1 [illegible] covered [illegible] West Los Angeles, Calif.

Swall's Successful Prune Production

(Continued From Page 2)

During the busy season more than 100 men are required to carry on necessary operations. If it weren't for itinerant Mexican prune pickers, who with their families, camp on the place and work by the piece, the manager would be sorely tried indeed.

Good wages and fair treatment are the reasons for the success of the Swalls in maintaining their smaller force of skilled Labor, the backbone of the ranch operations. And it is undoubtedly because of the skill and dependability of the mechanics and drivers that Swall has had such success with his fleet of "mechanical mules," including two "45's and one "75" tracklayer, as well as smaller tractors, trucks and automobiles. No less than fifteen trucks and cars are maintained, and during the summer and fall the home camp resembles the automobile grounds at a fair, with everything from Cadillacs to battered flivvers, many of the latter owned by Mexican laborers, occupying every available parking space.

"If labor conditions, freight rates, speculation and politics don't ruin agricultural California, maybe the automobile will," lugubriously suggests this big operator. But he immediately adds: "Yet I don't see how we could get along without them." That was the only pessimistic utterance we heard, and he said this half in jest.

ADVOCATES FAIR DEALING

Swall is of the big, broad-minded type which constructs rather than destroys. For many years a trustee of the Prune and Apricot Association, and now one of its directors, he has made a close study of economic conditions, has traveled about considerably, and has learned to see both sides of any controversy. "Everything will come out all right in the long run," is his philosophy, "provided we all play fair and square with each other, never lie down and quit because of discouraging conditions, and use the best judgment possible. Even the recent controversy within our big association should not cause us to lose faith in its possibilities."

He is a firm believer in co-operative marketing and has some very definite ideas of his own as to possibilities for improvement in the present system. Yet, because some of his suggestions were not supported by all of the directors of one association of which he is an official, he willingly cast his vote with the majority and submerged his own views for what the others deemed the best interests of all.

Even the co-operative cannery, which handled his peaches this year and which has been the subject of much criticism on the part of smaller growers especially, while not indorsed in all particulars by Swall, has in him a stanch defender, because he can see the terrific difficulties under which it has labored recently. This ability to see "the other side" has brought forth both condemnation and appreciation, but Swall is man enough to stand up for what he considers the fair viewpoint.

HAS PROGRESSIVE IDEAS

Moreover, he is always on the lookout for better methods, and equipment designed to increase efficiency. For example, he is thoroughly sold on the dehydration idea, having installed for handling his 1923 prune crop one of the largest hydrating plants in the State, with a capacity of forty green tons of fruit a day. This equipment, together with dipper, grader and automatic tray stacker, which does the work of six men, cost nearly $30,000. And in two years more, if conditions are favorable, anticipating an annual production of 3000 green tons of prunes, Swall plans to double his dryer capacity!

Some prune growers and agricultural officials are not entirely convinced that dehydration will produce prunes of as good quality as those dried in the sun. But Swall is able and willing to argue this point, and in addition can describe savings which he believes justify the big investment.

As one example, he points out that it would require 16,000 trays to sun-dry the fruit which is handled with 2200 trays in the dehydrator. Figure the saving at a dollar a tray! Moreover, the acreage required for a dry-yard is made available for production, the operators can work mostly in the shade instead of out in the blazing sun, and the work is concluded in three or four weeks.

Granting that the cost per tray may not be much lower than for sun-drying (depending on conditions, of course), Swall points out that the only weather conditions which can ruin the crop is a heavy, sustained rain which might catch the fruit in the orchard.

"When we dried in the sun," he explains, "we ran the risk of losing our fruit after we had gone to all the expense of harvesting, dipping and spreading the trays. Now we know that if we once get it out of the orchard we can run it through the dehydrator and put it under cover without loss. Now we can even pick in the rain and be sure of saving the fruit."

A 25,000-gallon storage tank holds crude oil used for fuel in the dehydrator.

(Continued on Page 10)

1500 Eggs

from 160 Hens

Mrs. H. M. Patton of Waverly, Mo., writes:

I have fed 2 boxes of "More Eggs" to my hens and I think they have broken the egg record. I have 160 white leghorns and in 21 days I got 125 dozen eggs.

Over a million poultry raisers have already learned the value of Reefer's More Eggs Tonic. You, too, can keep your hens laying eggs *all winter* by the use of this scientific egg producer.

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The "More Eggs" Tonic did wonders for me. I had 29 hens when I got the tonic and was getting five or six eggs a day. April first I had over 1200 eggs. I never saw the equal. EDW. MEKKER, Pontiac, Mich.

50 Eggs a Day

writes MYRTLE ICE, of Boston, Ky. She adds "I was only getting 12 eggs a day and now get 50."

Results Guaranteed

Start using More Eggs Tonic right now. Keep your hens laying right through the coldest weather when eggs are highest. You can get big profits from your hens this winter, just as hundreds of other More Eggs users are doing. Your money refunded if not delighted.

15 Hens—310 Eggs

I used "More Eggs" Tonic, and in the month of January from 15 hens I got 310 eggs. MRS. C. R. STOUGHTON, Turners Falls, Mass.

$1.00 Package FREE

Don't send any money. Just fill in and mail coupon below. You will be sent at once *two* $1.00 packages of "MORE EGGS." Pay the postman for *one package* ONLY $1 plus a few cents postage. The extra package is *FREE*. Don't wait—take advantage of this offer *today*. Reap the profits "MORE EGGS" will make for you. Get eggs all winter. Send today!

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Send me *two* $1.00 packages of More Eggs Tonic for which I agree to pay the postman only $1.00, plus postage, when the package arrives. It is understood that if I am not entirely satisfied at the end of 30 days you will refund my money.

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If you milk ten or more cows, a De Laval Milker will soon pay for itself. Besides saving a great deal of time and drudgery, it produces cleaner milk and by its pleasing, uniform action usually causes cows to give more milk. More than 15,000 users will tell you so. Send coupon for complete information.

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3. **All-Around Superiority**—Superior design, workmanship and materials; cleaner skimming; smoother and richer cream.
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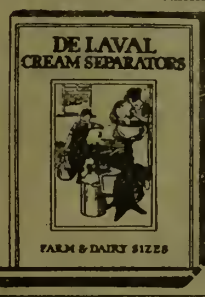

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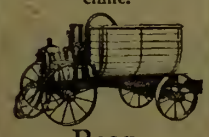

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Porcelain-lined cylinders that wear for years; a Pump without stuffing boxes or stuffing box troubles; a Pressure Regulator that saves fuel in the engine, and wear and tear on engine and pump; Threadless and troubleless ball valves; high wheels under the tank load for easy hauling; low down construction to miss low hanging limbs and hug the ground on side hills; every feature that makes for good work, long life, and economical operation you find in the Bean.

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MATHEWS

PAINTS SINCE 1887 WALL PAPERS

Sacramento Sets Aside Planting Week

By IRVIN ENGLER

Secretary-Manager, Sacramento Chamber of Commerce

WHILE the Eastern States are blanketed with snow and held in the grip of winter, the citizens of Sacramento, Cal., during the week of January 20 will turn out en masse—armed with shovels and rakes—for a great community planting campaign.

Plant Trees Protect

Trees, bulbs shrubs, seeds—thousands of them—will be planted within the city's boundaries during that week. It will be the first campaign of this nature in the history of California and the enthusiasm already created not only insures the success of the event, but indicates that this will be an annual affair in the California capital

The plan for this project originated in the city beautification committee of the Sacramento Chamber of Commerce. It was reported that many varieties of shrubs, bulbs and flowers would thrive best and mature at an earlier date if planted in January. A committee headed by M. B. Pratt, State forester, F. N. Evans, city park superintendent, and Hugh McWilliams, Sacramento County forester, has worked out a program of "how, what and where to plant."

The week's activities will be launched in the churches of the city on Sunday January 20 when a part of the services will be given over to the civic benefits to be derived from planting. The city luncheon clubs and women's organizations will carry on the work during the week. The grand climax will come on Friday, January 25 when more than 10,000 school children will participate in special exercises

Miss Geneva Watson, chairman of the beautification committee, predicts that more than 20,000 plants of various kinds will be set out during the week. "You may imagine," she states, "how it will enhance Sacramento's beauty when this added wealth of foliage and bloom comes into being next spring and summer."

To stimulate interest, the committee will award prizes to the luncheon clubs which make the most original demonstrations, to the school making the most creditable showing and for other features of the campaign.

One of the problems confronting the committee was to provide sufficient bulbs shrubs and seeds at reasonable cost to accommodate the great army of planters. Through the co-operation of the city park department and nurserymen, this problem was solved, the nurserymen consenting to sell stock at cost.

The beautification committee has purchased from its appropriation a great quantity of flower seeds. In the school department the children have worked out a plant exchange whereby a child who has extra bulbs or shrub cuttings from his home can exchange them for other varieties.

Sacramento has set as one of her aims that of making herself the most attractive city in the United States. A good start in this direction already has been made. This has been rendered possible by the exceptionally favorable climatic and soil conditions which are suited to the culture of a great variety of trees, plants and flowers. A plentiful supply of water, unrestricted by meters has been a big factor in developing the horticultural beauty of the city

Tulare Orchard Success

(Continued from Page 9)

The fruit is dumped direct from the wagons into a hopper connected with the dipping plant, and from that time forward very little hand work is required. The automatic machinery stacks sixty-four trays on each car, at the rate of four a minute. The car is moved through the dehydrator on tracks imbedded in cement, and the fruit is dumped after drying onto an endless conveyer which carries it to the bins

The Swall prunes are being stored on the ranch this year because of inability of the local packing house to handle all the fruit. They are insured by the association, however, and the owner has received his advance payment, the same as though the prunes had been delivered to the packing house

As to orchard practice Swall follows the best methods developed in the industry, practicing a modified system of long pruning. He does not prune his peach trees at all until they reach the desired height for easy picking, then tops them and maintains them at this size. Some of his young Peaks clings, now just 3 years old, produced a box to the tree the past season. Some of the peach trees on the ranch are 25 to 30 years old and are still bearing profitably

Irrigation water is obtained from the "farmers' ditch" or canal of a local water company, and three seven-inch centrifugal pumps are maintained for emergency use. On account of the dry weather this fall and early winter, irrigation has been carried on later than usual this year.

"Plenty of water," is a standard formula for successful fruit growing in the interior valleys, but, as Swall points out, production is not the big problem on the good soils of his district.

"Marketing is the thing that we must perfect," says this successful grower. "It is of no avail to produce big crops at great expense if they can't be sold at a fair profit. But I think this will work itself out, because I don't believe we are really suffering from overproduction. This year's prune crop is far short of last year's. I believe the association will succeed in cleaning up both surplus and current production and it looks as though satisfactory prices would be obtained."

Mr. and Mrs. Swall, with their family of five children make their home on the ranch, occupying the old family homestead. They admit that the lot of the farmer is no bed of roses, but are in the game for better or worse, and manage to get a lot of satisfaction out of overcoming difficulties—not to mention the many advantages they enjoy

"Here's the way I look at it," concluded our host as we left the well-equipped ranch office: "A man has to be hungry in order to enjoy a meal or, if he goes hunting or fishing and bags the limit in one hour, he misses the joy of conquest. So it is with life. We hope to be on the side of the winners, of course. But when my race is run at least I'm going to make folks say of me: He put up a good fight.'"

Winter Irrigation

BONE dry orchards will be benefited by irrigation even though fairly heavy early rains may occur. Last winter the rainfall of Southern California was totally inadequate to meet the needs of our orchards.

Where irrigation water is available in large enough quantities, however, the shortage in the rainfall is not quite so serious but where water is high priced or the supply not great enough, the soil becomes so dry that trees suffer.

Lack of soil moisture in the late summer causes early maturity of the trees and a weak condition of the buds and branches. This condition gradually will grow worse as the winter months pass by unless irrigation water is applied, or the rainfall is heavy enough to soak the ground from which the roots are getting their supply of moisture.

Every fruit grower should very carefully determine the moisture condition of his soil. This may be done with a soil augur or with a shovel, the latter will give the best results when the ground is dry

The best interests of the trees require a moist condition of the soil at all times. If irrigation is necessary to supply this moisture, water should be applied at any season when the dry condition occurs.

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ORCHARD *and* FARM

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JANUARY 13, 1924

Growing Garden Seeds in Orange County

Half Century of Haven Seeds

SEED production is not as easy as it seems, conclude those who visit the Haven farms near Santa Ana (Orange County). How some of the difficulties of the business have been overcome are told herewith; also how planters can co-operate with dealers in securing better seeds and more of them. —*The Editor.*

By O. H. BARNHILL

MANY persons believe that the best seedsmen grow all their own seeds. This is a great mistake, states Haven, Santa Ana seed grower, who explains that seed production is a highly specialized industry and that each variety is raised in the particular locality best suited to its production. Formerly, most of the cabbage seed used in the United States was grown on Long Island; now the Puget Sound region produces more cabbage seed than all the rest of the country put together.

"Other seed growing centers have shifted to the Pacific Coast," states Mr. Haven, who came from Michigan, where his father began growing garden seed in 1875. "Conditions here are ideal for producing perfect seeds and harvesting them without injury from wet or damp weather. There is a big difference, however, in the various West Coast districts. There are only a few small areas where conditions approach the ideal.

"When I came to California to grow tomato seed, 19 years ago, I first settled in San Luis Obispo County. Several unfavorable factors were encountered, the result being that operations were transferred to the San Joaquin Valley. Various localities were tried, but in all of them the weather was too hot for tomatoes.

TOMATOES REACH PERFECTION

"Here in Orange County, where I have grown many tons of tomato seeds in the past ten years, climatic and soil conditions leave little to be desired. The weather is warm, but not too hot, while moisture conditions can be regulated to suit the needs of the crop. Dry, sunshiny autumns render it possible to harvest and cure seeds in ideal condition."

Five years ago Mr. Haven bought 60 acres of land just south of Santa Ana. The soil had many faults, but the new owner believed all of them could be rectified. Drainage was the first need, as the water table was only 30 inches below the surface. Lines of earthen tile were laid, 30 feet apart, four feet below the surface. Eight-inch mains and six-inch laterals were used.

"The good effects of tile drainage increase for two or three years," explains Haven. "It takes time for water channels to form in the soil. Through these openings alkali and other injurious minerals may be washed out."

The soil was improved further by growing leguminous crops and by green manuring, a grain crop four feet high being turned under one year. The ground is now in the pink of condition, producing splendid crops of vegetables. Although water had been applied but once this season, the soil contained plenty of moisture late in the summer.

Weed pests next were tackled. These proved a formidable foe and have not yet been completely conquered. Spraying with poisonous chemicals proved ineffective, the remedy lacking the essential property circulating with the sap, which is needed in order to carry the poison to the roots. In order to exterminate morning glories by cultivation, it was found necessary to stir the ground seven or eight inches deep every five days during the growing season, a very expensive operation.

SALT KILLS WEEDS

Granulated stock salt next was bought by the carload and spread over the ground one-half inch to one inch deep. This treatment "turned the trick," killing the weeds, root and branch. Subsequent soil injury was prevented by flooding the land repeatedly, the tile drains making it possible to wash out the salts.

"Insect pests and fungus diseases cause heavy losses to seed growers," declares Haven. "Last year we planted 400 acres of lemon cucumbers, which for 12 years we have grown successfully, and harvested only one-third of a crop, because of injury from angular leaf spot. This year we applied the treatment recommended by the United States Department of Agriculture, soaking the seed in mercuric chloride and dusting the vines once a week with lime, nicotine and sulphur.

"What was the result?

"See for yourself," suggested Haven, leading the way to the seedhouse window, from which a view of the big cucumber patch was obtained. The yellow leaves told how the disease was getting in its deadly work. A closer inspection showed that the crop wouldn't amount to much, the disease being fully as bad as it was last year.

"In most factories," pointed out the seed grower, "a mistake can be rectified in a day or a few weeks at the most. With (Continued on Page 6)

The new Haven seedhouse is considered one of the best arranged and equipped plants on the Coast for handling seeds.

A. B. and R. A. Haven. Another brother, L. S. Haven, takes an active part in managing the big seed farm.

Above—These barrels do not contain "moonshine" mash, but tomato pulp. Fermentation loosens the seed sac, permitting the seeds to be washed out.

Below—Extracting moisture from tomato seed with a hand press. Carloads of pulp are thrown away each year, in spite of the high price of ketchup

Drying tomato seeds. The flume in the background is used to wash the seeds out of the pulp, in much the same manner as placer gold is sluiced out of gravel. Great care is necessary to obtain high-testing seeds.

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
JANUARY 13, 1924

Pruning Newly Planted Deciduous Fruit Trees

Description of Three Ways of Trimming Trees When They Are Set in the Orchard, With Advantages and Disadvantages of Each Method

By GEORGE P. WELDON

Pomologist Chaffey Jr. College of Agriculture. Contributing Editor Orchard and Farm

JANUARY is the month in California which is most favorable for starting orchards. The soil at this time is usually in good condition from winter rains, and February generally adds a fine supply of moisture which is exceedingly beneficial to the newly planted trees.

No tree can do its best unless conditions with respect to soil moisture are satisfactory, and there is a heavy loss annually of newly planted trees which have not received enough water from irrigation or rainfall to meet their needs.

PROFESSOR WELDON

Where there is an abundance of water for irrigation trees may be planted much later than January, with good results. In general the planting season extends from January 1 to April 1, the earlier planting being preferable in the case of orchards which have to be grown without irrigation.

PRIMARY PRUNING IMPORTANT

It is important that proper pruning be given the tree at the time it is planted in the orchard. A good start may mean much in the life and productivity of the tree. There are three methods of pruning a tree the first year. For convenience we may term them the whip, spur and branch methods. Which one is used will depend on the kind and variety of tree, the age and, possibly, the soil.

When the planting is of one of the pome fruits, as the apple or pear, and the trees being planted are one year old from the bud, cutting to a whip is most desirable. By this is meant the removal of any branches which may be present and also the removal of the top of the tree, so that only a straight whip or trunk is left.

The height of the cut-back whip may be varied according to the ideas of the planter. The most desirable height is from 20 to 24 inches. Stone fruit trees may also be cut to whips, but at times there may be difficulty in getting a growth to start, because of a scarcity of buds.

A peach tree which has grown very rank in the nursery, and from which the branches have been removed for a distance of a foot or more from the ground, is very apt to have very few good buds when cut to a 20-inch whip. In most cases, however, there will be a few buds near the base of the tree and above the bud union; therefore, growth will take place from one or more of these low down buds and the tree will live and thrive.

As a general proposition, peach and apricot trees, when cut to a whip, will, as a result of the condition described, develop their growth from buds not far from the point of union of the buds and stock. Some planters consider this a disadvantage, since they desire to have the original trunk as the permanent trunk of the tree, and in order that it may be such it is necessary that growth take place somewhere near the top of the whip.

The writer's observations have indicated that a stronger tree will result from the growth of a bud near the ground than from one farther out on the stem. This may be accounted for in part by the drying out of the cut-back whip as a result of the removal of the top, and the exposed cut at the extremity of the whip.

In other words, a tree developing from a new trunk formed by the growth of a bud near the ground will usually make a bigger and a thriftier tree the first season than a tree grown from buds toward the extremity. The former condition of growth, of course, necessitates the removal of the original trunk just above the bud which grew into a new trunk.

Sometimes growers are worried because the trunk developed from a bud near the ground may be crooked. In extreme cases it may extend out at a very objectionable angle. This condition is only temporary and need be no cause for alarm.

A tree cannot be entirely shaped in one or even two or three years, and crookedness at first is only objectionable from the standpoint of the looks of the tree. No matter how crooked, the tree has a natural tendency to straighten itself and by the help of intelligent pruning the crooked trunk will finally become straight.

Cases have been observed where growth has been almost directly at right angles from the stem, and which has continued for some distance at such an angle. This condition itself invites growth from the point where the right angled branch starts from the trunk, and later when new upright growth has taken place the objectionable branch can be removed.

There are a great many newly planted orchards each season, where the trees have been cut to whips, and while an occasional tree may die because of an absence of good buds, most of them will live.

The spur method of pruning young trees is preferred by many planters of Southern California. As the name indicates, this method is one in which a certain number of spurs or portions of branches are left near the extremity of the cut-back trunk. The cutting back may be to a height of 20 to 24 inches, as in the case of the whip.

SPUR PRUNING DESCRIBED

From three to five branches, which are placed properly for a well balanced scaffold, are selected and cut back so that only three or four buds are left near the base of each spur. These buds usually will start growing, provided the spurs are strong. Weak spurs from weak branches may die and growth must be attained from the lower buds, as when the whip method is used.

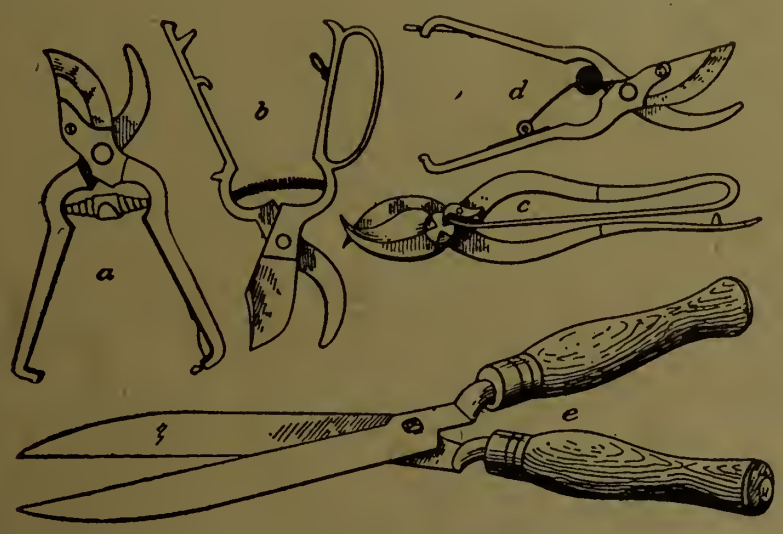
Often the growth from spurs will be weak and a satisfactory growth may take place from buds near the ground. Time and again trees pruned according to the spur method have new trunks as a result of the stronger growth coming from near the bud union, necessitating the cutting away of the original stem just above the desirable shoot.

LOW BUDS GROW BEST

While the spur method has many advocates and is most desirable in cases of large trunks with few or no buds, the best trees very often come from buds near the ground. Such buds develop their maximum growth when no spur growth occurs.

The third or branch method, as the name indicates, takes advantage of the branches which are grown in the nursery. Three or more are selected when the tree is planted and left without any topping. Vigorous trees with a strong root system will do well when pruned by the branch system, likewise June buds make a very satisfactory growth.

On the other hand the leaving of entire branches may not permit of heavy enough pruning of the top to re-establish the balance between root and top, which was disturbed through loss of roots in the digging of the tree.



Common types of pruning shears. The most popular style is (a), which has a strong spring, not apt to be fouled with twigs, as is the one on (b). The handle of the latter is not well shaped. The French shears (d) are very good, but the parrot's beak shears (c) are not very good form. The best hedge trimmer (e) is the kind with blades hollowed near the hinge, to hold large limbs and prevent slipping. Illustrations from M. G. Kains' "Principles and Practice of Pruning."

Brown Turkish Figs

VERNON COONS of Elk Grove has a small orchard of brown Turkish figs. The 1923 crop was sold on contract to a San Francisco preserving company for 8 cents a pound. This price is noteworthy, indicating that this concern likes this variety better than other sorts for its special purpose.

The brown Turkish tree makes a low, spreading top. The fruit is large and well flavored and does not need caprifying. Considerable interest is being shown in the variety about Elk Grove. —W. J. J.

How Co-Operative Marketing Pays in the Antelope Valley

Palmdale Pear Growers Form Association—Secure Better Prices at Less Expense.

By ROBERT W. HODGSON

Agricultural Extension Service, University of California

THAT co-operation pays and pays well is the experience of a group of Antelope Valley pear growers who three years ago organized a local co-operative marketing association, according to W. J. McAdam of Palmdale. Five or six years ago extended plantings of Bartlett pears were made in that district, as a result of the profits returned on a few bearing orchards set out many years previously. The bulk of the crop until recently was disposed of in Los Angeles for the [illegible] with very satisfactory [illegible] growers.

W. HODGSON

[illegible] three years ago, however, it [illegible] that no longer would [illegible] market absorb the [illegible] out of this new [illegible] section and the question [illegible] plans looking toward the fu[illegible] of great importance. [illegible] of Antelope Valley pears [illegible] growers have at no time experienced much difficulty in securing buyers.

There has been a feeling, nevertheless, that the orchardists were not getting as much out of the fruit as they should. It was this sentiment that led to the gathering together of a group of growers for the purpose of organizing a co-operative marketing association.

After months of discussion, the Antelope Valley Pear Growers' Association finally was organized and affiliated with the California Fruit Exchange as its sales agency. The young association has made good with its members and has brought them increased returns, both in average prices received and in savings made.

This fact is brought out by McAdam, who for several years has been president of the association, in the following statement:

"In 1921 the association handled 55 cars, out of a total of 70 sent out from Palmdale, the nearest shipping point. In 1923, the association shipped out 73 cars, out of a total of 110.

"One of the principal sources of profit accruing to grower members of the association has been from the reduction in commission charges for selling, which was reduced from 10 per cent to 7 per cent the first year and to members was further reduced to 3 per cent.

"The saving in packing charges has been approximately 20c per box during the present season and has averaged 15c per box for the past three-year period."

McAdam estimates that in savings alone association members have profited by more than $50,000 during the past three years. He points out further that as a result of the work of the association the other pear growers in the community have profited to the extent of saving 3 per cent on commission charges for selling.

Not only has the association handled the production of its members, but it has also for the past two years supplied them with spray materials at a price approximating 50 per cent of the retail price for similar materials.

A lime-sulphur manufacturing plant has been built and paid for out of a revolving fund accumulated from the sale of spray materials to members at 15c a gallon. The cost of manufacturing the lime-sulphur, which McAdam stated was superior to the average made at commercial plants—according to tests made by the State Department of Agriculture—has averaged from 10c to 11c per gallon.

On the question of returns made to members for fruit sold, McAdam stated that the association had secured somewhat better prices than had outside buyers and agencies. Furthermore, the association has by means of its revolving fund paid for its equipment and packing house and maintains a substantial fund for operating expenses. Returns for fruit sold are distributed to grower members somewhat earlier than received by growers outside the organization.

Minor advantages received by members have been in the matter of the collection of freight claims, in which the association has been strikingly successful. As an indication of the way in which the advantages of co-operation are realized by Antelope orchardists, half the pear acreage in the valley is signed up with the association.

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Farmer's Viewpoint

FARMERS' BLOC—STEPPING STONE

Those who long have fattened at the crib of special privilege are complaining that the Congressmen who make up the so-called "farmers' bloc" selfishly force through class legislation, unmindful of the interests of the Nation at large.

Agricultural laws recently enacted and proposed directly benefit one-third of the country and indirectly the remaining two-thirds. If that be class legislation, our political enemies are welcome to make the most of it. The only persons who are pinched by such statutes are those who have in the past taken unfair advantage of farmers and forced us to occupy an inferior place in the American industrial system.

The general public rejoices that at last we are getting our just dues at Washington and being enabled to place our business on an equal footing with the other great commercial enterprises of the Nation.

American farmers have placed in the path of national progress no stumbling block, but a stepping stone to higher and better prosperity.

MARY SELLS A LITTLE LAMB

One of the latest and best examples of cooperative agricultural marketing is furnished by the California Wool Growers' Association, which during the past year rendered invaluable service in solving the lamb-selling problem.

Although the supply of California lambs does not equal the local demand, there is a great surplus during the spring season. In order to relieve the pressure on the market at this time of the year the association arranged for shipping hundreds of thousands of Golden State lambs to Eastern consuming centers, where they were sold at attractive prices.

The result was most gratifying, preventing the annual price slump at the season when it did much damage to the producer. Successful selling of farm produce is largely a matter of equalizing the supply at various markets, furnishing goods when and where needed.

OIL HOLDS UP ALKALI

Population is not the only thing that is interfering with Southern California farming. The oil boom makes such a loud sound that some farmers can not hear the call of suffering soil.

In the Downey (Los Angeles County) district, lack of drainage has caused an injurious accumulation of alkali in the top soil. Efforts to form a drainage district there were in a fair way of being crowned with success, when somebody struck oil and gummed up the game.

The baleful connection between oil and agriculture is this: Farmers received so much money for oil leases that they lost interest in growing crops. Many of the more progressive land owners moved out when their neighbors refused to cooperate in land drainage. Those who now possess the land appear unwilling to invest a portion of their oil lease money in drainage.

"This is a short-sighted policy," comments Farm Adviser Hodgson. "When the earth has been drained of its subterranean riches, farmers will be forced again to cultivate the surface, in order to earn a livelihood. They should take advantage of the present oleaginous opportunity to rid their land of alkali."

VAN NUYS WATER PROBLEM

The San Fernando Valley also has a drainage problem, the accumulation of surplus water near the surface having forced more than one orchardist to pull out his trees, according to the authority quoted above. But there is this important difference between the drainage situations at Downey and Van Nuys:

In the former district the oil which has been poured upon the troubled alkaline waters has lulled the landowners into a lethal sleep of false security, while in the latter locality the farmers are very much alive to the dangers of water-logged soil and are taking effective measures to see that the soil is relieved of surplus moisture.

What's New? — Keeping Abreast of Agricultural Progress

State Lime for Farmers

DURING the past five years 8000 tons of agricultural lime has been manufactured by the State of Oregon and furnished to farmers. Marion County, in the Willamette Valley, uses nearly 100 carloads of lime annually to correct soil acidity. This valuable alkaline chemical is manufactured at the Gold Hill (Jackson County) State lime plant.

Assisting 60,000 Farmers

DURING the past ten years 60,000 students have enrolled in one or more of the correspondence courses offered by the State College of Agriculture. Thirty-four courses of study are available to those who wish to learn more about the theory and practice of California agriculture. Particulars may be obtained from the Agricultural Experiment Station, Berkeley.

How Bonded Warehouses Help

THERE are in California thirty-five bonded raisin warehouses, twelve for prunes and apricots, ten canneries and seven granaries and elevators.

"It is quite possible," asserts G. M. Hecke, director of the State Department of Agriculture, "that many large California banks this year will refuse to accept any warehouse receipts other than those issued by California bonded warehouses."

Extending Imperial Irrigation

THREE hundred thousand acres of soil in the Mexican part of the Imperial Valley is being surveyed by Stanley W. Cosby of the University of California. The work is being done under the direction of the Mexican government for the purpose of determining the value of the land for intensive farming.

If the report is favorable, it is the intention greatly to enlarge the irrigated area of the Imperial Valley by pumping water from the Hardy branch of the Colorado River.

What Irrigation is Doing

A STRIKING example of the benefits of irrigation is furnished by the Modesto Irrigation District. The value of approximately 100 square miles of land was by the application of water increased from $2,400,000 to $20,000,000, exclusive of improvements. The cost of the water was $900,000.

The investment in farm equipment increased from $1,000,000 to $15,000,000. The gross income from crops rose from $600,000 to $9,000,000.

Before water came there were eighty-one farms of 1000 acres each; now there are 2000 forty-acre farms. The population has increased from 3500 to 24,000. All this was accomplished in seven years.

Mailing Free Fruit Samples

DURING National Apple Week, Yakima Valley, Washington, growers gave away 5000 apples. The fruit was sent by mail to all parts of the country in cartons three inches square, each box containing a single choice specimen.

The need for a wider market is indicated by the fact that 1000 carloads of Yakima apples of the 1923 crop were worked up into vinegar and other by-products. This fruit was too poor in quality and small in size to bring profitable prices when sold fresh, in which form only the finest apples are marketed.

Nearly half the apples grown in the Yakima Valley are Winesaps, Jonathans, Rome Beauties and Delicious come next in quantity.

Harriman Appointed Chairman

W. R. HARRIMAN, superintendent of the Los Angeles County Farm, recently was appointed by the California Farm Bureau Federation chairman of a special committee of three to lead the California dairy improvement campaign for 1924, in cooperation with the Agricultural Extension Service.

This project is part of an interstate program perfected at a recent conference of Farm Bureau and Extension Service workers at Ft. Collins, Colorado. Twelve States were represented and three main projects agreed upon, the others being ranch improvement and human nutrition.

Harriman has made a great record in improving the dairy herd at the County Farm.

Mixing Spoils Good Cream

ONE of the evils which has grown up in connection with the dairy industry in California is the habit of mixing the product of different patrons, on truck routes, instead of delivering it to the plant in individual containers, where it may be properly graded, according to the State Department of Agriculture.

This system is unsatisfactory for many reasons and especially so because it is manifestly unfair to the dairyman who takes good care of his product and who is entitled to a premium for his efforts to produce a more salable and higher priced finished product manufactured therefrom.

One can of sour, old or rancid cream will spoil a whole load and lower to the same degree the quality of butter into which it is manufactured.

This system offers only discouragement to the producer of the highest grade of cream and puts a premium on carelessness and neglect. Creameries employing this method of delivery pay the same price for all cream, irrespective of grade, which is manifestly unfair.

Eating Pacific Cranberries

LOS ANGELES bought a dozen carloads of Pacific Coast grown cranberries for the Thanksgiving and Christmas trade. These cranberries were grown near the mouth of the Columbia River, from which point they were shipped by boat to the southern metropolis. The total crop the past season amounted to 50,000 boxes.

Between 50 and 74 carloads of Eastern cranberries are shipped to the Pacific Coast each autumn.

More Milk for San Diego

SAN DIEGO appropriated $1500 to buy milk for school children and $500 to pay a public nurse, in 1923; for 1924 the appropriation has been raised to $2,000 for milk and $1500 for a nurse.

The money comes from the Community Chest and is spent under the direction of the Parent-Teacher Association. Much of the credit for these liberal appropriations is given Miss Zora Hutchinson, representative of the California Dairy Council.

Carolina Farmers' Pledge

TWO thousand North Carolina farmers have taken the following pledge:

"Raise enough corn and hay to carry me through 1924. Raise enough meat to supply my family this year. Have a 12-month-in-the-year garden. Provide milk and butter for the family for the whole year. Keep an average of 30 hens on the farm. Improve the orchard by setting out trees and berries. Plant legumes and other soil-enriching plants. Enroll at least one child in club work. Add some conveniences. Beautify the homestead."

Ask for "Agricultural Regents"

IN order to take the State Department of Agriculture out of politics and enable it to function more efficiently, delegates to the Fifty-sixth Farmers and Fruit Growers' Convention, recently held at Santa Ana, decided to ask the State Legislature to pass a law creating a Board of Agricultural Regents.

It was recommended that the board shall consist of ten active farmers, appointed by the Governor for a term of twelve years, to serve without pay. These regents are to have the appointing of the director of the State Board of Agriculture and to render every possible assistance to the furtherance of California agriculture.

"THEY SAY"

DR. J. P. BENSON

Fresno County Farm Adviser

DR. J. P. BENSON

FRESNO business men and Fresno County farmers pull together in most instances for the welfare of the community. Probably no other association has the support of every people that has been accorded the Raisin Growers here in Fresno. City residents realize that upon its continued success depends to a great extent the prosperity and development of Fresno itself, which owes its present position to agricultural achievement.

However, farmers have opposed two campaigns sponsored by civic organizations. One was a plan to set out eucalyptus and other trees along the highway between Fresno and Kingsburg. It was opposed by farmers on the grounds that these trees, especially the eucalyptus, are "robbers," which frequently damage adjoining orchards and farm crops.

It was pointed out by State Forestry officials that other kinds of trees which would not cause this damage would be more desirable to plant anyway, but because of the feeling among the farmers, the plan was abandoned for the time being.

Then, when the raisin situation became settled, there was a good deal of agitation for diversification, and influential town people wanted to carry on a big campaign for dairying. They were discouraged, however, by agricultural leaders, including Farm Bureau officials, on the ground that a wave of enthusiasm for dairy production might result in overdoing this line with possible damage to existing dairies and at least temporary overproduction.

It was pointed out that the inexperienced dairyman might have harder sledding than the fruit grower for a time, because only experienced milk producers who understand all phases of the business and who know how to hold down expenses, have been making a real success of the business in this county.

By testing and improved production methods we have increased the average yield of our cows, but costs have mounted more rapidly in proportion.

The attitude of the Farm Bureau was that it is better to let things work themselves out than to stimulate a false wave of dairy enthusiasm which might do more harm than good in the long run. The natural result of present conditions is a tendency toward diversification, and such changes as have resulted are being made gradually, permitting proper readjustment.

Conserve Forests

ORCHARD and FARM is in receipt of a communication signed jointly by M. B. Pratt, State Forester, and Paul G. Redington of the Federal Forest Service, pointing out the necessity for supporting a constructive policy at present, rather than "passing the buck" to future generations.

In the opinion of these authorities, figures furnished by the University of California and published recently in this magazine are too high as to present forest area and length of time the supply will last at present rate of consumption. Following are some of the conclusions set forth by Pratt and Redington:

AUTHORITATIVE DATA GIVEN

"In anticipation of the visit to this State last September of the select committee on reforestation of the United States Senate, the various organizations which have most to do with forestry got together and prepared from best available sources statistics regarding the forest resources of the State.

"These now are in published form and the associations interested—namely, the California Forest Protective Association, California White and Sugar Pine Manufacturers' Association, the California Redwood Association, the California State Board of Forestry and the California District of the United States Forest Service—use them as authoritative when discussing matters which involve the use of statistics.

"The total forest land area of California is 19,196,000 acres, and, in speaking of forest land, we mean that land which produces timber in merchantable forms, leaving out of consideration the vast area of woodland from which at the best, fuel supplies might be obtained. The total virgin timber supply in California is estimated at 284,505,000,000 feet, board measure.

"The present annual depletion of merchantable timber by cutting and fire is estimated to be at the rate of seven-tenths of one per cent, which, applied to the above total of merchantable timber and continuing at a steady rate, would mean that our virgin stand would have been cut over in 140 years.

INCREASED CONSUMPTION CITED

"However, this does not involve the question of an increase in production of lumber and wood products which is going to be a most important factor in figuring out the future of this problem. There has been a steadily increasing production of both pine and redwood in California and what the future holds forth in view of the demand for the raw material which is falling heavier on the Western States annually, is problematical, although from the way things have been going I believe we can figure on a steadily increased production.

"Therefore, we believe that it is time to take count of stock and to make plans which will provide for the orderly and steady regrowth of the forests from which the mature trees are now being taken, and in saying this, we do not want to be classed as 'calamity howlers.'

"The conditions which may exist 140 years from now are impossible to foresee and many people naturally, when assured that they can figure on adequate supplies of wood materials for that period, will be inclined to pass the buck to the next generation.

"We think you will agree with us [illegible] those who have a real interest in the future of this State and nation would be derelict in their duty, if they [illegible] to diagnose the situation carefully now and to make plans for the [illegible] of such remedial measures [illegible] be necessary to guarantee [illegible] supply of wood material for [illegible] come after us and who will [illegible] as much, if not more, than [illegible] today.

[illegible] OWNERS INTERESTED

[illegible] the national forests of this [illegible] 96,000,000,000 feet of this [illegible] timber is now found, the [illegible] Government already has in[illegible] forestry methods which will [illegible] the cut will never exceed [illegible] of timber replaced by new [illegible] the Federal Government [illegible] one-third of the standing [illegible] in California [illegible] [illegible] of the [illegible]

[illegible] region, the present [illegible] are [illegible] to [illegible] their lands [illegible] forestry principles and [illegible] pine region [illegible] in the matter, [illegible] th[illegible] Federal, State and private agencies interested in forest protection, growth and production, the time will not be far away when the entire area of our forest producing land, cut over as well as virgin, will have been covered by a comprehensive forest management program."

How Cow Owners Can *DOUBLE the* Net Dairy Profit

Could you use double the expected profit from your cows this winter?

A startling thought, yet decidedly within the reach of nearly every dairy. So possible, so sensible, you'll wonder why you never fully realized your opportunity before.

Without following a difficult or expensive formula, this happy result may be yours. Just the same sound business principles as are applied by successful manufacturers in other fields of production will enable you to realize your goal.

10% More Milk Will Do It

Noted dairy experts say that in the average dairy one tenth more milk will double the net profit. They say this is conservative. It costs no more, for instance, to house, feed and care for a good milker than a poor milker. After these items of fixed expense are met, every quart of milk is net profit. What other effort on the farm will pay you so handsomely as intensive milk-production?

But start right. Remember one basic rule: **Perfect health has more to do with big milk yields than breeding or feeding.**

Keep the milk-making organs working full-speed—but at the same time strong, sturdy, vigorous. They must not only withstand forced production, but be able to throw off the diseases so common to dairy cows.

WHAT KOW-KARE WILL DO

Here Kow-Kare will help you in a definite, positive way. The same medicinal properties that have made Kow-Kare so popular as a cow medicine are doubly effective in promoting milk-making vigor. Why? Because Kow-Kare acts directly on the genitive and digestive organs—the milk-producing functions of the cow. It enables the animal to properly assimilate Nature's foods and turn them into milk, without waste.

As an aid to big milk production, it is not necessary to use Kow-Kare continuously or in expensive quantity. Indeed, most dairymen feed only a tablespoonful twice a day, one week out of each month—a cost of only a cent a day per cow.

WHEN DISEASE CREEPS IN

The reputation of Kow-Kare for the treatment of Barrenness, Abortion, Retained Afterbirth, Scours, Bunches, Milk Fever, Lost Appetite, etc., has grown tremendously during its more than 25 years' use. No cow owner should be without it. Feed dealers, general stores and druggists sell Kow-Kare. Large size, $1.25; medium, 65c. If your dealer is not supplied we will mail postpaid upon receipt of remittance.

WORLD'S CHAMPION AGNES WALLACE

Helped by Kow-Kare

M. G. Welch & Son, Burke, N. Y. write: Enclosed find picture of our four-year Ayrshire cow, Agnes Wallace of Maple Grove (25171), champion four-year-old Ayrshire cow of the world, with a record of 17,657 pounds milk and 966 pounds butter in one year. We have used Kow-Kare in our herd for years and would not think of getting along without it. We consider it the best cow tonic known.

"Our imported herd sire, Auchenbrain Brilliant Sun Imp. 23664 now weighs 2100 pounds and eats Kow-Kare whenever I think him in need of a tonic."

DURING CALVING

Rollin H. Maxfield, Erie, Ill. says: "We have been using your Kow-Kare for over five years and think it the best thing for cows at all times to keep them in condition. We find it especially good when used about a month during calving time, two weeks before and two weeks after."

USED KOW-KARE FOR 22 YEARS

John Moser, Lisbon, O. writes: I have used your Kow-Kare for 22 years. I keep it in the barn all the time and I wouldn't be without it. I am about to feed it to my large herd of cows about one week out of every month to maintain a good, healthy condition."

RESULTS AFTER ONE WEEK

H. L. Kobb, English, Ind. says: "I fed a part of a small can of Kow-Kare to three cows, one week, and got wonderful results; especially from one old cow that had not been well for some time. I am telling the neighbors of the good it is doing"

Let us mail you our free book, "The Home Cow Doctor." Besides much general information of value to cow owners, it tells about the other popular Dairy Association remedies, Bag Balm, Garget Remedy, Horse Comfort—all fitting companions to Kow-Kare.

DAIRY ASSOCIATION CO., Inc.
Lyndonville, Vermont

A cent a day per cow

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Lyndonville, Vt.

I would like the assistance of your book, "The Home Cow Doctor," which please send without cost. Also please send me a free 2-ounce sample of BAG BALM (worth 15c) for which courtesy I am writing on the margin my dealer's name.

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Cream Separator Facts Worth Thinking About!

It is not enough to buy a cream separator that skims *fairly* clean and that runs *fairly* easy—you want one that gets *all* the butterfat down to the last drop and that runs so easily that a child can turn it. In addition, you must get construction that makes many years of good service possible.

In recent tests, the Illinois Cow Testing Association found it a common occurrence, on average farms, for *out-worn, poorly constructed, poorly cared-for separators to waste $25 worth of butterfat every month.* Think of it, *$300 wasted in a single year!* If the machine you are using is failing you in such a manner, you cannot afford to operate it a single week longer, regardless of the so-called "bargain price" you may have paid for it.

It is unnecessary for you to suffer such butterfat losses. You can escape them by throwing out the wasteful machine now and replacing it with a new, efficient McCormick-Deering Ball-Bearing Cream Separator. These modern, easy-running separators represent genuine economy. From the viewpoint of long life, easy-turning, and close-skimming, they outrank all others. You need one on your farm!

If ready cash is not plentiful, ask our dealer for his liberal terms. Let a McCormick-Deering Primrose earn bigger cream profits for you and apply the extra dollars on the easy payments the McCormick-Deering dealer will offer you.

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WHY EXPERIMENT? BUY PETALUMA INCUBATORS!

Plant June Buds

"I HAVE found in my long nursery experience," says Luther Burbank, "that a well grown June-budded tree, three or four feet in height, is worth about two two-year-old trees. And I might almost say it is worth about as much as six of some varieties; for a young, fresh June-budded tree can be taken up with all its roots, packed with little expense and planted with half the trouble of larger trees. June buds will bear as early as one or two-year-old trees and generally continue to bear well throughout their existence."

The value of June buds is emphasized also by William T. Kirkham Jr., well known nurseryman of Fresno. Kirkman points out that in the past, largely because of difficulties of propagation, June-budded trees have been grown by California nurserymen principally to relieve shortages.

But many growers have had such good results with this type of nursery stock that they demand June buds, with the result that more and more are being grown by the nurseries.

The Kirkman company, for example, is said to have inserted during the month of June this year more than 2,000,000 buds, from trees recorded by the Nurserymen's Bud Selection Association.

The Way a June Bud Grows

Kirkman has expressed the belief that planters in California soon will demand good June-budded trees, practically to the exclusion of yearling trees, and points out that this already is the case in the Southern States.

Some of the reasons why June buds develop into more satisfactory orchard trees than the usual one-year grade are given by a prominent grower as follows:

The head may be formed where desired and there is less likelihood of damage by sunburn and borers, because the tree is not overgrown or barkbound, and the buds, being vigorous and fresh, push out branches and leaves quickly, the entire length of the trunk.

In transplanting there is less shock than in setting out the usual two year-old root.

The weaklings are eliminated in this process because only an inherently-strong seedling has vigor enough to force a bud to grow into a tree during the same season that the seed is planted.

Grow Pistachio Nuts

ACCORDING to Claude Tribble of Elk Grove considerable interest again is developing in the pistachio, a nut which grows and produces nicely in California, when proper varieties are planted, but which has been a complete failure commercially, owing to the expense of preparation for market.

The one hopeful prospect now is in the development of machinery to crack the nuts and remove the meats. This has been done very successfully in a small way with a machine used for cracking apricot pits.

Pistachio dealers state that California pistachios are far superior to the Asia Minor product and that they will pay $1 a pound for these nuts.

Former unprofitable plantings are likely to discourage extensive development now, but unless a few large plantings are made the manufacture and use of cracking machines is improbable.—W. J. J.

Trailer Saves Money

JOHN YUNT, Lindsay orange grower, used to haul his crop to market with a five-ton motor truck. Increased production demanded more extensive carrying equipment.

Instead of buying another truck Yunt purchased a four-wheel trailer. The latter carries seven tons more than doubling the capacity of the truck.

Not only did the trailer cost less than another truck, but the cost of operating the former is considerably smaller than the latter. A five-mile trip—half with a load and half empty—required twelve gallons of gas for the truck alone but only 16 gallons for both truck and trailer. The two vehicles sometimes transport sixteen tons of citrus fruit.

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You will get from Ward's only goods that will stand *inspection and use*. We never sacrifice quality to make a low price. We offer only the kind of goods that is *best for you to buy*—the kind that will hold your patronage.

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FOR THE HOME: Beauty and Comfort and Usefulness—each article we sell for home decoration and home furnishing has these merits. Everything is selected by experts. To the woman interested in beautifying and modernizing her home, this Catalogue offers a treat indeed. Everything practical everything new, and everything at a saving that makes possible the purchase of more new things than you had planned.

FOR THE FARM: For fifty-one years we have been friends of the American Farmer. And he has been our friend. We are continuing our help by working harder than ever before to make his savings greater and to make his money go farther. Everything must be to his complete satisfaction. This Catalogue offers almost everything for the farm—from poultry and stock supplies to fencing, hardware, and tillage tools.

FOR MEN: Overcoats, suits, shoes—everything for man's, young man's and boy's wear in good style and of serviceable quality. Tires, auto accessories, batteries, everything for the automobile. This book shows, in fact, almost everything a man wears or uses or that is of interest to a man, and the prices offer a saving—always.

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CERTIFIED White Leghorn quality chicks from selected free-range, heavy-laying, utility hens mated to double pedigree cockerels with authentic trapnest records. Our breeding flocks are inspected and accredited by the Sonoma County Farm Bureau. Safe arrival and full count of live, vigorous chicks guaranteed. Accredited "AA" grade chicks at single "A" prices. Send for catalogue and attractive spring prices. MUST HATCH INCUBATOR CO., INC., the World's Largest Electric Hatchery, 432 7th St., Petaluma, Cal.

WE'RE BOOKING CHICKS for most winter and spring weeks from some of world's highest egg-producing Leghorns, Anconas, Reds, Minorcas, Rocks, Brahmas, Wyandottes, Andalusians, Orpingtons; reasonable. Reduced if booked ahead. Capacity, 300,000. "Never saw such size, vigor, rapid growth, egg-yield!" PROFITABLE POULTRY, 12 N. Fair Oaks, Pasadena. Mail only

STRONG BABY CHICKS—We specialize in two best breeds for farmer who must get his profits from actual production of eggs and market fowl; all from stock rigidly selected for several generations from cocks with dam's record of 200 to 275 eggs per annum. January prices, $17 per hundred for white Leghorns, $27 per hundred for White Plymouth Rocks. PURE BREED HATCHERY, San Mateo, Calif.

CHICKS, only the better grade, at popular prices. Hanson White Leghorns, Br. and Buff Leg., Reds, Barred Rocks, Anconas, Blk Min., Blue Andalusians. Now booking orders for spring. COCKERELS, $5 and $10; Hanson Wh. Leg., Tormohlen Br. Leg., Blk. Min., Anconas and Blue Andalusians. Free folder. McDONALD POULTRY RANCH AND HATCHERY, Rt. 1, Box 246, San Jose, Calif.

BABY CHICKS—White Leghorns, R. I. Reds, Barred Rocks. Over 200 eggs per year—that is record behind our White Leghorn stock. Write for circular and 1924 price list. Booking now for Jan., Feb. delivery. Safe arrival guaranteed. THE J. H. STUBBE POULTRY RANCH AND HATCHERY, P. O. Box 67-C, Palo Alto, Calif.

WHITE LEGHORN BABY CHIX of unusual value, from especially well culled hens mated with full pedigreed males. Prices per 100: January, $16, February, $15, March, $14, April, $12.50, May and June, $12. 100% live, strong chix guaranteed. We are accredited by the Sonoma County Farm Bureau. THE PIONEER HATCHERY, 476 Sixth Street, Petaluma, Calif.

CERTIFIED BABY CHICKS from inspected flocks. All hens have undergone rigid inspection; mated with males having authentic trapnest records of at least 200 eggs on the side of both parents. Certified by Alameda County Poultry Breeders' Assn. Now booking orders for fall and spring deliv. Utility prices. Chanticleer Elec. Hatch., Inc., Hayward, Cal.

WHY DELAY? Place your order for 1924 chicks with the White Hatchery, the hatchery with a reputation for good chicks. Safe arrival, full count guaranteed. Member of Accredited Hatcheries, Sonoma County. "A" and "AA" stock. Price right. Send for catalog. WHITE HATCHERY, Petaluma, Calif.

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PEDIGREED S. C. W. Leghorn Baby Chicks and hatching eggs. Our large selected hens are matched to Hanson's high pedigreed cockerels. Prices reasonable. DINIC HATCHERY, Petaluma, Calif.

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WEBB'S S. C. WHITE LEGHORN CHICKS

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WEBB'S CACKLE FARM

2500 choice selected hens mated with cockerels from trapnested hens with records of 200 and better.

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PEERLESS rabbit hutches, convenient, sanitary, fully equipped, prices low, freight prepaid. J. K. DOLAN, 1536 E. 25th st., Oakland

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BERRIES and SMALL FRUIT PLANTS. Fruit Trees, Roses and Grapevines. All varieties for immediate delivery. Plant early for best results. My 27 years of experience as a practical fruit grower and nurseryman will assure you delivery of large, thrifty, well-rooted stock, which can be depended upon for quality and reliability. Write for price list. Descriptive catalogue sent on request. M. J. MONIZ, P. O. Box 477, Sebastopol, Calif. Phone 23 F3.

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NURSERY STOCK—Excellent Black Bartlett pear trees at cut prices, while they last. French prunes, peaches, 'cots, plums, etc. Lowered prices on all stock. Secure your wants while they last. Reliable stock and stock of quality. Send for planters' list. 34 years in business.
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EXCLUSIVE growers of Stuart Prune trees; also California Black Walnuts and Kadota Fig trees and other fruit and nut trees. Wholesale and retail. Write for prices. RIPON NURSERY CO., P. O. Box 153, French Camp, Calif.

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KADOTA Figs—Rooled trees and cuttings, our stock direct from the original Taft orchard; this is the early bearing and heavy tonnage variety. RADICS & POMEROY, Oakdale, Calif.

FOR SALE—Oregon Improved and Brandywine strawberry plants, $1 per 100 plants or $7.50 per 1000. WM. KALTHOFF, Occidental, Sonoma County, Calif.

FRUIT AND ORNAMENTAL TREES—Most complete line offered Southwest. Buy direct from growers. Catalog free. Express paid. Consolidated Nurseries, Houston, Tex.

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GLADIOLUS, 20 large, mixed $1, 10 blooming size, $1, 25 Primulinus, $1. Ask for price list. C. O. JORGENSEN, Salinas, Calif.

GLADIOLUS, beautiful colors, 100 bulblets and 25 one-year-old bulbs, $1.25, postpaid 15c. PHIL LAESER, Sun Prairie, Wis.

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OUR BACK-TO-LAND PLAN—We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land, deep, rich, tried soil; complete irrigation with cheap water; thorough drainage; rail, water and highway transportation. Write owners, SUTTER BASIN COMPANY, California Fruit Bldg., Sacramento, Calif.

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THE Sun Maid people are offering $2,500,000 worth of first mortgage 7 per cent gold bonds, maturing serially from 1925 to 1935, at 99 and accrued interest.

It will be a surprise to many of our readers to learn that the Sun Maid Raisin Growers' Association is a Delaware concern, although all the common stock is owned by the Sun Maid Raisin Growers of California, the well-known co-operative association.

The Delaware corporation has charge of all the purely commercial functions in connection with the handling of the raisin crop. It holds title to all the real estate, plants and equipment, prepares the fruit for market, advertises and sells the crop.

From the proceeds of the crop, the Delaware corporation deducts the entire cost of operation, including interest on its funded debt and dividends on preferred stock, returning the remaining funds to the co-operative association for distribution among growers.

There are 16,500 Sun Maid raisin growers, who in 1923 produced 200,000 tons of raisins, which is two-thirds of the amount grown in the entire world. Counted at 5 cents a pound, the California crop was worth $20,000,000.

During the past five years the Sun Maid people spent $7,000,000 in advertising their product. They own real estate, buildings and equipment valued at $6,000,000, which secures the new bond issue.

SOME REASONS

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2—Grow only standard varieties that have stood the test of time.

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5—All nursery stock inspected in nursery row during growing season by expert pomologists to detect mixture due to human error.

6—Commercial plantings gone over during first year in orchard.

7—Our issue, on application, of the KIRKMAN NURSERIES GUARANTEE contract guaranteeing ten times their value that the trees are true to name. This guarantee backed by Hartford Accident and Indemnity Company Surety Bond.

8—Extra cost of trees that can be so guaranteed financed by elimination of the expenditure of large sums usually paid to agents who render growers practically no service in return for their usual commissions.

9—Our own confidence and faith in the future of the California fruit industry shown by our present holdings of over 3000 acres of young orchards and vineyards, embracing practically all commercial varieties of fruits.

10—Large commercial orchardists in California, with time and means to investigate and secure the best, depend almost entirely on Kirkman trees.

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PUREBRED TOGGENBURGS from recently imported stock. Heavy milkers. Raised under ideal conditions. Sure to please. CANYON GOAT RANCH, Redlands, Calif.

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PATENT ATTORNEYS

HAZARD & MILLER. Herman Miller formerly eight years member examining corps U. S. Patent Office. Hazard's Book on Patents free. CENTRAL [illegible], Sixth and Main, Los Angeles, Calif.

BOOKS FOR FARMERS

FREE!—1924 Daily Egg Record FREE! Contains poultry pointers, calendar and ruled pages for the daily egg record. We want you to have a copy. Send postal and record will be mailed promptly. GOLDEN EAGLE MILLING CO., Petaluma, Calif.

"THE HOME GARDEN" by [illegible] Johnson, of Pomona, the largest plant grower in California, tells how, when and what to plant and how to cultivate. Post paid [illegible] cents.

MacDONALD'S FARMERS ALMANAC ([illegible] edition) for 1924 now ready. Very useful and interesting, larger and better than [illegible]. Price 20c. ATLAS PRINTING CO., Binghamton, N. Y.

BOOKS for farmers; years reading; [illegible] bound books prepaid $1. [illegible] covered free. ARCHER SPENCER, [illegible] West Los Angeles, Calif.

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LEAF TOBACCO—Chewing, five pounds, $1.75; ten, $3.00; smoking, five pounds, $1.25; [illegible] $2. pipe [illegible] [illegible] CO-OPERATIVE FARMERS [illegible]

Growing Garden Seeds in Orange County

(Continued from Page 2)

the farmer the results of wrong plans are much more serious. If he plants a crop which is destroyed by some pest or disease, he has lost a year's time. Great are the hazards of cropping the soil.

The nematode, a minute root worm, is another plant pest which gives serious trouble. It has been found much worse in sandy soil. There are several varieties of nematodes, believes Haven, who has found that some kinds do not bother tomatoes and that one sort will not attack corn.

Excepting the unfortunate "cukes," all the other Haven crops looked like pictures of perfect health and marvels of uniform productiveness. Great fields of beans and tomatoes, with rows as straight as arrows and not a weed in sight, stretched away in the distance. Clusters and masses of red tomatoes lay ripening in the summer sunshine, while lifted bean leaves revealed piles of wide, green pods, promising a prodigious crop.

Two hundred acres of Fordhook bush limas are being grown, also 30 acres of Burpee's Improved bush lima. Although the latter are vineless, the bushes cover the ground between rows 32 inches apart, which is two inches wider than lima beans usually are planted. There are six acres of Chinese Giant peppers and various other vegetables.

SLUICING OUT SEED GOLD

The process of washing out tomato seeds would remind a '49er of sluicing out placer gold. The pulpy mass is dumped into a wooden trough, which has riffles or baffles in the bottom for catching the seeds. The latter, being heavier than the pulp and skins, sink to the bottom, while the refuse is carried by water to the lower end of the long flume.

The tomatoes first are ground up in a mill, after which the seeds are washed out and allowed to stand over night. The seed sac ferments and afterwards is washed away. In order to squeeze out the surplus moisture, the seeds are placed in a bag made by sewing two seamless grain sacks together and enclosing them in a heavy, iron-bound box, a screw press being employed to apply pressure to the bag of seeds. After being dried and cleaned, the seeds are sacked for market.

Eighty bales of seamless sacks, each containing 100 bags, are used each year, indicating the extent of Haven's business. Thirty tons of tomato seeds are harvested annually, one 20-acre field containing 30 varieties.

"Why not save the pulp?" inquired the visitor, having in mind a trainload of tomato soup and ketchup going to waste.

"Can't be done without impairing the quality of either the seeds or ketchup," explained Haven. "Tomatoes spoil very quickly and must be handled with extreme care to produce good food or seeds. Some ketchup factories save the seeds, but the latter are not the best quality."

STORING SEEDS SUCCESSFULLY

The commodious seedhouse has hollow tile walls, which maintain a remarkably even temperature, one of the essentials for keeping seeds in prime condition. Canvas window shades exclude strong light.

Mule power is used for most of the field work, 22 animals being housed in a barn 60 feet square, to which is attached a shed of equal size. The latter shelters the mules when not in use, from hot sun and cold rain and also protects the manure, which is stored in the shed until spread upon the ground. Gypsum is sprinkled over this fertilizer to prevent fermentation and to preserve the ammonia. Hay is fed from a central mow, in surrounding mangers.

The barn holds 120 tons of baled grain hay. The stalls, double on one side and single on the other, are floored with cement, in which plank platforms are embedded. These platforms can be removed for cleaning.

The bottoms of the mangers are hinged at the back, to allow them to drop down when *(Continued on Page 10)*

Canada's

1923 Crops Beat All Records

SHARE IN CANADA'S OPPORTUNITIES

In 1923 the wheat crop of Canada exceeded the 1922 crop by almost 100,000,000 bushels. In Alberta, the average yield was 26.5 bushels per acre and there were many individual cases where yields of 50, 60, 75 and 80 bushels were returned. Other crops showed a corresponding increase over previous years with equally high yields. These enormous yields on moderate priced land even at average prices for farm products have placed many farmers on the road to success.

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LEAVES YOU A SURPLUS FOR COMFORTABLE LIVING

The Canadian Pacific Railway now offers you a Farm Home in Western Canada on a New Long-Term Plan of Easy Payments that is Extraordinary. The plan makes it possible to own a farm home without taking all profits to meet land payments and leaves a surplus for the comforts and enjoyments of life.

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FIRST YEAR FREE USE OF LAND

Under this plan all the settler pays down is 7% of the purchase price —One year's free use of the land without any interest chargeable whatsoever. The balance of principal and interest will be amortized on an easy payment plan of 34 equal annual payments which makes the second payment fall due two years after the purchase of the land, which is figured on the basis of 7% (including principal and interest) of the balance of the cost of the land. For example, on a purchase of 160 acres costing say, $3,000, the down payment will be $210 and the annual payments, commencing at the end of the second year, will be $195.30. After 35 years the settler will get clear title to the land—unless, of course, he wishes to pay sooner, which is his privilege.

NO TAXES ON IMPROVEMENTS

Taxes are moderate and there are no taxes on livestock, buildings, improvements, implements or personal effects. Good markets, modern schools, roads, churches, amusements make farm life in Western Canada desirable and attractive.

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In sunny Alberta—a district that is especially adapted to mixed farming and where irrigation has been proved beneficial—a vast irrigation system with an unfailing supply of water administered under the direction of the Government, has been constructed.

Irrigation in Southern Alberta—insures you a crop every year—increases your crops each year—makes you independent of weather conditions—produces great quantities of coarse grains, pastures, alfalfa, roots, etc., thus developing the livestock industry which is safer and ultimately more profitable than wheat farming—tends toward closer development, well-cultivated farms, good neighbors.

These lands are also for sale upon the same amortization terms as our other farm lands. Full details on application.

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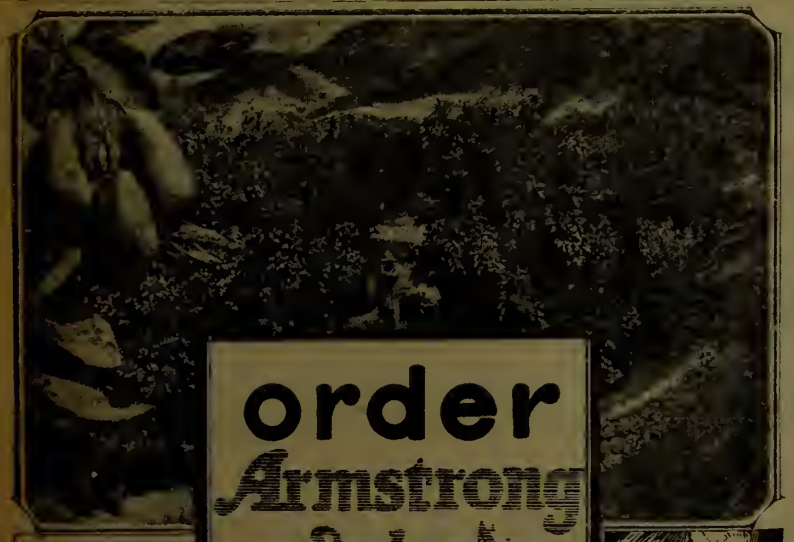

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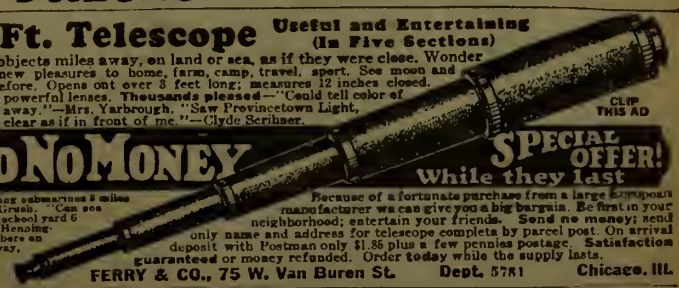

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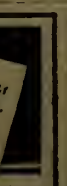

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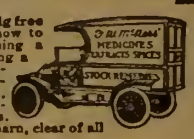
Write today for our big free book which tells you how to make big money running a "store on wheels" selling a big line of Sanitary Medicines, Toilet Goods, Perfumes, Tea, Coffee, Spices, Stock Remedies, etc., direct to farmers and homes.



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Red Top Steel Fence Posts and Farm Fencing

HARRY BAYLIES, "The Fence Man"

432 Pacific Finance Bldg. Los Angeles, Cal.

Success With Seeds

(Continued from Page 9)

it is desired to empty the manger of refuse. Another unique feature is a three-inch iron pipe which runs along the top of the mangers in front. The halter chains are hooked over pins which project inward and downward, touching the top plank of the manger.

By turning a lever at one end of the barn, the pipe may be rolled over, leaving the pins sticking upward, thus releasing the animals. In case of fire, this arrangement might prove of great value in rescuing frightened work stock. The electric wiring is enclosed in metal pipes—another kind of practical fire insurance.

Quantity production of garden seeds looks like "big money," considering the prices paid by planters even after allowing large middlemen's profits, but Haven declares there has been little profit in the business the past few years.

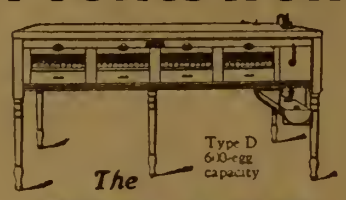
"No, it is not lack of a market nor falling prices. The latter are higher than they have ever been since I have been in the business. The high cost of production is the rock which wrecks our profit ship. Twenty years ago we could hire Japs to work 11 hours for one dollar; now we must pay them $4 for nine hours' work. New Jersey seed growers are paying negroes $100 a month and board.

"Labor is the big item in seed production. During the harvest season we employ as high as 200 workmen, which means an operating expense of more than $1000 a day. A great deal of handwork is needed to grow and harvest high quality garden seeds.

"If planters were willing to pay a premium for improved strains of the best varieties there would be some real money in the seed growing business. While demanding the choicest quality of seeds, however, the average farmer or truck grower is unwilling to pay more than the price of ordinary stock. The result is that many seed growers cut production costs to the bone in order to make a profit."

Haven is fortunate in being enabled to maintain his high standard of work, by the increase in land values. Enterprising subdividers are closing in upon his seed farm, which could be sold for approximately $2000 per acre.

Profits from Baby Chicks



The **JUBILEE INCUBATOR**

Profits from baby chicks depend upon a high percentage of hatch and a high quality of chick. A Jubilee gives you both.

Jubilee's Original Hot Water System is still the best. Jubilee's method of Moisture Control insures exactly the right amount of moisture at all times. Jubilee's System of Ventilation provides plenty of oxygen for the eggs and oxygen is life to baby chicks in the hatching!

A new combination hatching-and-turning tray increases the capacity of the 117-egg incubator to 150-egg, other sizes in proportion, and saves the cost of an extra set of trays.

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Sign and send the coupon for new Bulletin which describes the entire Jubilee line and shows you how to have big success with baby chicks. Also, ask about Jubilee Hot Water Brooders and Electric Incubators.

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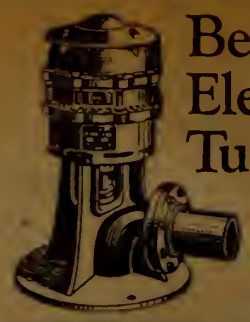
I would like a copy of the new Jubilee Bulletin.

Name_____

Address_____



Bean Electric Turbine

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A big new improvement in turbine pumps. Motor and pump head built into a single unit. Fewer bearings and less parts subject to wear means low first cost and low cost of upkeep.

No lubrication troubles because there are no under-surface bearings to lubricate. No trouble from sand or grit. Maximum supply of water at minimum expense. In 6-inch size and up for domestic wells; larger sizes up to 15-inch.

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Learn Autos in Los Angeles!

Come to National Automotive and learn the auto business thoroughly. National has been established twenty years, and is acknowledged to be America's Finest School. Here you do actual work on Cadillacs, Fords, Packards, Dodges and all kinds of modern cars. You are taught machine work, tire work, motor work, electrical work, garage managements, etc., all in one course for one small tuition fee.

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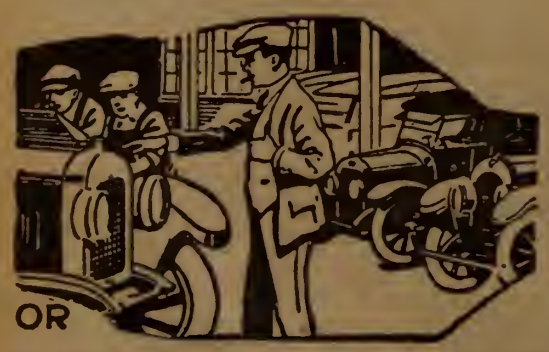

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For bulky crops, such as hay, trailers can be used with great advantage in connection with auto trucks.

If this purebred boar could speak he probably would tell how he enjoyed his auto truck ride to the sales pavillion.

The Pasadena city farm uses an auto truck to haul walnuts and potatoes to market.

Auto trucks have been found especially useful in moving truck crops from field to packing house, speed being important.

Auto trucks are being used more and more for transporting farm animals to market and from one ranch to another. This cow is starting on a real joy ride.

"A New Race of Apples!"

—declares Prof. WENDELL PADDOCK, OHIO STATE HORTICULTURIST

Luther Burbank, California's "Wizard of Horticulture"
—who wrote us—"My Stark's Golden Delicious trees bore the third Summer after being set out and have borne regularly every year since."

"I look for it (Stark's Golden Delicious) to be the starting point of **A NEW RACE OF APPLES**" (after he had seen its amazing habit of **regularly bearing on new 1-year wood, year after year**). "It beats anything I ever saw! High quality, a beautiful golden color and **one of the best keepers.** I have never tasted an apple that was richer or higher in quality. The fanciest apple I ever saw. **Stark's Golden Delicious is the most remarkable apple production that has been made in recent years!**"—are the words of one of America's foremost apple and orchard authorities, **Prof. Wendell Paddock, Ohio State Horticulturist,** Columbus, O.

He is just one of the Nationally-Known Apple Experts who marvel at Stark's Golden Delicious record. For instance,

Prof. J. C. Whitten of Univ. Cal. Said:

"Stark's Golden Delicious will prove itself to be one of the **leading apples of this Country. I ate on July 15th Stark's Golden Delicious Apples (picked last fall), which were in thoroughly crisp condition.** Flavor was very sprightly despite long time storage and repeated handlings. I have never eaten an apple coming out of storage this late (July 15) which retained so fully its normal crisp texture. It far outstrips Grimes Golden."

And NEW YORK'S most celebrated Pomologist, **PROF. U. P. HEDRICK,** declared in **The Rural New Yorker:**

"Stark's Golden Delicious is creating the sensation of the times among apple growers!"

"Creating the Sensation of the Times"
—Prof. U. P. Hedrick, N.Y.

Actual Average Size of Stark's Golden Delicious Apple

Stark's Golden Delicious

The Yellow Apple That Is Amazing ALL America!

It has brought this high praise from **LUTHER BURBANK,** California's "WIZARD OF HORTICULTURE":

"I have found Stark's Golden Delicious an unusually young bearer. My Stark's Golden Delicious trees bore the 3rd Summer after being set out and have borne regularly every year since."

And a practical California orchardist, J. E. Parrish, San Luis Obispo Co., writes:

"Last summer my Stark's Golden Delicious trees were 2 yrs. old and every tree bore from 6 to 15 apples. They did this, **despite the fact that a severe frost killed** the first bloom but the second bloom set and matured 6 to 15 fine apples to the tree. They are also growing into fine, big, well-branched trees."

See THIS MAGNIFICENT APPLE

—faithfully reproduced in Nature's Own Coloring in our Big FREE 1924 FRUIT TREE BOOK. Learn how it averages 50 to 75 per cent larger than Grimes Golden—and even superior in flavor to Grimes and a much later keeper.

It is a glossy Golden Yellow apple, slightly conical (the ideal shape for packing).

Flesh is rich, creamy yellow, with a faint tinge of orange—crisp, firm, with a sparkling, tang-ful flavor and an alluring aroma much resembling a great glorious pear. A combination of mild sweetness and sprightly spiciness that pleases everybody.

Bore 128 Apples at 2 Years Old

Frank L. Wingard, Fresno Co., Cal. (see photo at right) reports—"One of my Stark's Golden Delicious trees bore 128 apples — another 70, at 2 years"

18 Apples on 2-Yr. Tree

Irs A. Klein, Tuolumne Co., Cal., (see photo below) writes: "This Stark's Golden Delicious tree, planted 2 yrs ago, bore 18 apples this year"

GET the NEW FREE Book that Gives ALL the Astonishing FACTS about this Apple!

Simply send us your name and address on the Coupon—a Post Card—Today.

We will immediately forward your free copy of this big 80-page De Luxe Edition 1924 Fruit Tree Book showing 316 beautiful True-to-Nature Color Photos of Finest APPLES, PEACHES, PEARS, PLUMS, CHERRIES, BERRIES, etc. and also Shrubs, Shade-Trees, Hedges & Rose Bushes.

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2d Crop on 3-Yr. Tree

A. Johnson, Rogue River Valley, Ore., sent in photo below. This tree bore when 2 yrs old—again when 3 yrs old

Write for FREE Book—and learn how Stark Trees, especially Stark's Golden Delicious, helped A. Johnson (see photo above) get $13,000.00 for crop from 40 acre orchard last year

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☐ SPECIAL EDITION "HOMES OF BEAUTY" showing NEW 1924 Trees, Shrubs, Vines, Hedges and Rose Bushes. BOOKLET of Ornamental Fact X is worth at left if you want a FREE SEEDS of Stark's "BLIGHT-RESISTER" Tomato.

I may plant ..... Trees this coming Spring

State Kind and Number.

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State .....

O. and P. 1-13-24

ORCHARD and FARM

JANUARY 20, 1924

He Runs Both a High School and Fruit Ranch

And Is Successful With Both!

CAN a professional man successfully live upon and operate a farm and at the same time carry on his duties in the city? The subject of this little story has been doing that very thing for several years. "Bringing up" an orchard involves many of the same principles as developing young manhood and womanhood, he believes. And he finds pleasure and satisfaction in either field of endeavor.

By ALBERT L. MASON

WE don't know Fletcher Ayres' political affiliations — perhaps he's a Democrat, for he received his first horticultural training on his father's farm in Kentucky.

But anyway, we nominate him as a Progressive. Here's why: When first we met Ayres six years ago, he was science instructor in the Visalia High School (Tulare County) had just married, and was living in a small, rented apartment in town while struggling to develop a fruit farm which he and his brother had just acquired.

Today he is principal of the same school, with a faculty of twenty-five, and more than 500 students; has two of the sweetest little daughters that ever swelled a manly bosom with paternal pride, and is living in his own attractive, modern bungalow-home on his fifty-acre ranch, which is just on the verge of big production.

What has all this to do with politics? Absolutely nothing! But that is what we call progress! Therefore we christen Ayres a "Progressive."

Now, you say, how can a man live on a farm six miles out, and at the same time hold down such a responsible educational position? And isn't he carrying too heavy a burden? And doesn't the ranch suffer because of his inability to give it his exclusive attention?

Answering the last question first, "Yes." One season Ayres' walnut trees suffered several hundred dollars' damage through carelessness on the part of hired help. During school season the owner can give only superficial attention to his agricultural enterprise.

He leaves for town in his car about 7:30 each morning and often does not reach home until after dark; in fact, two evenings a week he conducts night school until 9.

Fletcher Ayres points with pride to this fine grape arbor at his home.

"Some pumpkins," say the happy healthy Ayres kiddies.

Walnuts are interplanted with prunes and peaches. Pruning the Ayres trees.

Main building of the half-million-dollar Visalia high school, of which Ayres is Principal.

WASTES NO PRECIOUS TIME

"But," the professor-producer reminds us, "there is Sunday and sometimes Saturday free—and a man can do a heap of planning and work over the week-end." Needless to say, however, Ayres doesn't find much time for hunting, fishing and golf; in fact, he doesn't demand such recreation. His ranch is his hobby and its development his "play."

Which answers the question about carrying a heavy load. "Hard work never hurt any able-bodied man," is Ayres' philosophy. "It's sticking too steadily at one thing that does harm. My two lines of work are so diffirent that one is a welcome change from the other."

And as for living in the country and spending business hours in town—the combination of California good roads and climate and the automobile makes this feasible. Ayres has run his car over 40,000 miles in five years—mostly back and forth on his daily trips, and in summer on ranch business or for family outings. This we regard as something of an index to the driver's character, for we have known other owners to ruin cars of the same make in half the time on city streets! Ayres believes in taking good care of what he has.

And so does his partner and helpmeet. Right here let us pause to say that the gracious young mother who presides over the busy household furnishes the final answer to the reader's questions. She likes ranch life, believes it best for the children, is well pleased with the present arrangement and—well, as the man of the house confessed, "If she didn't like it, I guess we wouldn't be here."

WALNUT TREES THRIVE

But we started out to tell an orchard story and we haven't even got down to lug boxes yet! There's a fine young walnut grove—trees that were fresh from the nursery when we made our first visit—now equal in development to many 12-year-olds in Southern walnut districts. Even the replants, and there are quite a few of them to mark milestones of discouragement, are great, big (we were going to say, "overbearing") fellows.

Yes, walnuts thrive in Tulare County where the soil is right, and the Ayres ranch is in the rich delta or sediment district, where the water table is not as elusive as in some sections and where the fertility question is not a serious problem. Four or five hundred dollar land it is—and worth $800 to $1500 when in bearing orchards.

The walnuts are Franquettes and Mayettes, a total of fifty acres, planted fifty feet apart. Thirty acres of this is interset to French prunes and a few "Robes," together with canning peaches, mostly Orange Clings. There is a small patch of alfalfa in the part devoted entirely to walnuts, and during several seasons other intercrops were grown, including beans and pumpkins. Neither tepary nor black eye beans have proved successful, however, because of unfortunate market conditions.

One year, though, Ayres sold 400 tons of pumpkins for $1000. The buyer used them for hog feed. A small patch of pumpkins is planted every year and used for the family cow and the work horses. The latter are used for all orchard cultivating.

Ayres' experience with a small, wheel-type tractor has been unfortunate. Like some other owners of moderate-sized orchard properties who depend largely upon hired help, he has become rather soured upon the power farming idea. A neighbor, however, insists that he wouldn't stay in the game if he had to go back to mules, so take your choice!

EARLY PRODUCTION

The orchard now is on the verge of heavy production. Two crops of peaches have been obtained. Last year, with a price of $60, they brought in a nice bunch of money. But this year's crop of fifty tons, delivered to a co-operative cannery at $30, was not quite so satisfactory as to returns, especially since up to December 1 the owner had received a payment of only $200!

The prunes have been profitable, this season's yield of thirty-two dry tons having been consigned to the association, with prices at this writing still uncertain, but prospects favorable.

The first real yield of walnuts was obtained this year—1½ tons, which were shipped to the California Walnut Growers, Los Angeles. From now on the walnuts are expected to "do their stuff" with increasing satisfaction to the owner.

It is easy to figure potential gross returns of $25,000 a year from this property, but of course many factors will have to be taken into consideration. That's the greatest difficulty with the farming game as Ayres sees it—the uncertainty of it, the inability to make plans for the future and the necessity for gambling on fluctuating markets.

"I believe 90 per cent of the growers would sacrifice the occasional seasons of very high prices in order to be assured of a reasonable annual return based on cost of production," says the teacher-farmer. But he admitted there seemed very little hope for early stabilization, except as the problem might gradually be worked out by universal support of the co-ops.

"One thing that might help to increase the confidence of the grower in the associations would be the appointment of a State board or even the authorization of the State Market Director to examine and report upon the books of the various organizations," Ayres suggested. "This might be handled on something like the plan of State bank examination. But the next best thing is decentralized control such as the Raisin Growers have inaugurated, whereby the producers have a more active part in the management.

"The essentials of successful cooperative marketing, as I see them, are: (1) Guaranteeing the grower a fair percentage of the retail market price; (2) tying up the members by an ironclad agreement running at least five years; (3) selling stock to the public as the Raisin Growers have done, or in some other way relieving the members of the burden of financing the sale as well as the production of their crops."

Ayres sees a direct connection between the uncertainty of agricultural prices and the unwillingness of more students to take up the study of this subject. Strange as it may seem, the High School of (Continued on Page [illegible])

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
JANUARY 20, 1924

Great Opportunity to Develop Cheese Industry

California Must Come Into Her Own as Cheese Producing State—Interesting Facts About Manufacturing---Ancient Art Now Applied Science

By LLOYD A. RAFFETTO

Dairy Industry Division, University of California

CHEESE is cheese to most of us. The grocer tells us that some customers specify either Eastern or California, or a certain brand but that most of his requests are simply for "a pound of cheese."

Few persons in America know there are more than 500 different kinds of cheese which offer unending, tempting variety, and from which many appetizing dishes can be prepared. In consequence, the consumption of cheese is approximately 3.8 pounds per person in the United States; while in some European countries the consumption is four or five times this amount. In Switzerland, for instance, the percapita consumption is more than twenty-six pounds yearly.

The ancient Greeks and Romans may not have known how much food value there was in cheese, compared with other foods, but they did know it was a highly concentrated food, invaluable for warriors on the march. Today, the relative food value of different foods is common knowledge. We know that cheese contains the essential building material for muscle and brain, and that it contains the best elements for growth and repair of the body. Notwithstanding all this, the majority of the American people will take a roast beef sandwich for lunch, in preference to a cheese sandwich, which has about three times the food value, sells for about the same price, and, contrary to popular belief, is easily digested.

GREATER CONSUMPTION NEEDED

Increasing the consumption of cheese offers large opportunities for development of the dairy industry. Statistics from the United States Department of Agriculture show us that if the people of this country would consume as much cheese per capita as the Dane, the Englishman, the Hollander, the German, or the Frenchman, or half as much as the Swiss, a market would be created for 9,000,000,000 pounds of milk more than is used at the present time.

Cheese of the American Cheddar type (so-called "Eastern" cheese), is the variety chiefly manufactured in this country, but there is a demand for cheese of foreign countries. In the years preceding the war, more than 60,000,000 pounds of cheese was imported annually. This was approximately one-fifth as much as was produced of all varieties in this country at that time.

Cheese making is such an old art that its origin is lost in antiquity. Passages may be cited from Pliny, which, it is believed, refer to an early form of Roquefort cheese. It is certain that cheese in some form has been familiar to man throughout historic times. This was but a natural development, since milk is an exceedingly perishable product. But when it is coagulated and made into cheese, all of the most important nutrient parts of the milk are preserved in a palatable condition and may be kept for a long time.

Cheese making has been an art for a great many years, each section having its own particular variety highly developed because of favorable local climatic conditions and the habits of the people. This accounts for the many varieties of cheese which bear the geographical name of the place where they were originated. Common examples of this are such cheeses as Roquefort, Swiss, Camembert and Limburger.

Recent developments have wrought great changes in the art of cheese making. Since it is now being taught in many colleges and highly trained men in the services of the Government and experimental stations are devoting their entire time to investigational work along this line, cheese making may be said to be an applied science.

As Professor Charles Thom, formerly of Connecticut Agricultural College, so aptly puts it, "We have analyzed the processes; discovered mico-organisms that hinder or help perfected devices and machines; devised tests of many kinds; studied the chemistry; developed markets for standardized commodities.

"Here is one of the old-established farm industries that within a generation has passed from the housewife and the homemade hand press to highly perfected factory processes, employing skilled service and handling milk by the tons from whole communities of cows."

It is very interesting to go through a cheese factory today and observe the modern methods employed. If Cheddar is being made, one sees milk flow by gravity into large 400-gallon vats (larger in many factories), where it is warmed up to about 86 degrees and where "starter" is added. Starter is a pure culture of organisms which impart a flavor to the cheese and improve the texture and body.

Pure vegetable coloring matter then is added to give the cheese a yellow color. The addition of rennet at this point causes the milk to coagulate in from thirty to sixty minutes, after which it is cut into small cubes with curd knives.

The curd then is cooked at about 100 degrees, until it is more or less firm, when the whey is drawn off and the cheddaring process begins. This is simply allowing the curd to mat in the bottom of the vat, and then cutting it up into strips and stacking.

OBJECT OF CHEDDARING

The object of cheddaring is to control the incorporation of moisture and to develop the texture desired in the cheeses. These strips then are cut up into small pieces by the curd mill. After salting, the cheese is ready for the hoops.

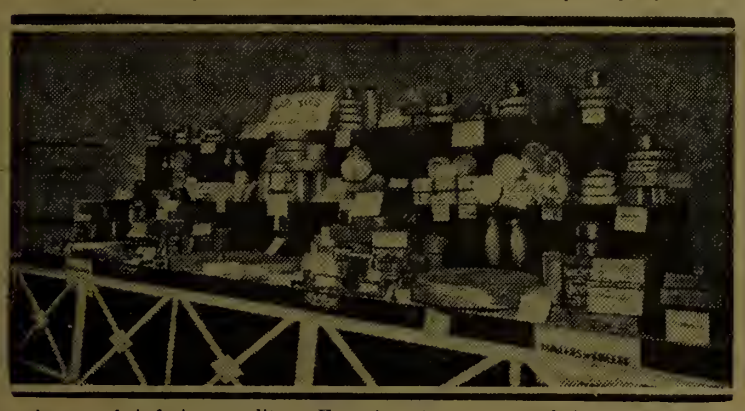
The curd, while still warm, is weighed into the hoops and put into the press. The following *(Continued on Page 8)*

University Farm Makes Cheese

THE author of the accompanying article is specializing in cheese work of the University Farm, Davis, where Prof. C. A. Phillips is in charge of the experimental laboratories.

The illustration, from a photograph taken at the California Dairy Show, shows what California can do in the production of this delectable food product!

Until recently local manufacturers have made principally "Jack"



cheese of inferior quality. Experiments now are being conducted at Davis, in co-operation with the U. S. Department of Agriculture (represented by S. A. Hall) in the manufacture of soft cheeses.

The University sells its excess dairy products to the public, making shipments by parcel post to many widely separated points. Any one wishing to receive price list should address Prof. C. L. Roadhouse, Dairy Products Division, University Farm, Davis, Cal.

How Southern California Egg Producers Manage Their Pools

Efficient Marketing System Described—Management Must Solve Many Puzzling Problems

By F. R. WILLIAMS

Secretary Poultry Producers of Southern California

WHEN the eggs of our members are delivered to the station they are put on the grading tables and the inspectors go through each case, grading the stock and entering on a candling card the shipper's grading, as shown by the grade slip, as well as the inspector's grading. Whether or not the eggs are candled depends upon the season of the year and what the trade is calling for.

CORNELE G. ROSS
President P. P. of S. C.

When the pool closes the candling cards are sent into the office, where the pool clerks make up the shippers' individual statements. The number of entries on each statement varies, but we estimate that on the average there are 20 entries on each statement therefore with a pool of 600 shippers there would be 12,000 entries.

The computations on each shipper's statement are proved and likewise all figures of the entire pool. While this involves a great volume of detail, nevertheless it is necessary in order that a proper record may be made and that there may be no loss of money to either the member or the association.

WEEKLY POOLS ARE LARGE

[illegible] run from $20,000 to $50,000 [illegible] As there are 52 of these [illegible] it will be seen that the [illegible] involved is considerable.

[illegible] to the pool statement, [illegible] of making up the [illegible] it will be noticed that there must be entered on it the date, name and the amount. The checks are run through the protectograph machine and each check must be signed by two officers.

After the pool statements and checks are completed, they are put into envelopes, sealed and mailed. Since the association commenced operations six years ago, we have never failed once in mailing the pool checks each Friday.

The association only can pay its members what it receives for eggs when sold, less the usual deductions. The selling price of the different grades varies during the week.

HOW PRICES ARE FIXED

To make up the pool prices we take the total sales price of a given grade and divide this total by the total number sold.

To illustrate: If we sell 60,000 dozen extras and the total amount of money we receive for them is $18,000, to determine the pool price we divide the given amount of money by the number of dozens of eggs, which is 30c per dozen.

From this there is deducted 3½c per dozen to cover the 2c handling charge and 1c for the new cases in which we sell the eggs, making the net pool price 27c per dozen for extras. In the same way the net pool price of all grades is determined.

It will be seen from this that our pool prices are not and cannot be made up by setting a fixed amount over or under the average market quotation for the corresponding week. As a matter of fact, the Los Angeles daily exchange quotation does not always represent the price received on the exchange for the bulk of the eggs sold, but is the price at which the last sale for the day may be made, whether it is ten cases or a thousand.

It will also be seen why it is that we should pay for dirty eggs on the basis for which they are sold. If we paid for dirty eggs 1c per dozen under the price of extras, when as a matter of fact the dirties brought from 10c to 15c per dozen less, the entire pool price would be lower on extras.

FINANCING REFRIGERATION

During the spring months, when we are putting eggs in storage, the member receives money for his eggs each week, as usual, while the association itself must finance these storage holdings until the fall of the year.

The one cent per dozen capital stock deductions are used to help finance our storage operation and to make it possible for the grower to receive his weekly check.

Any profits made from storage eggs goes into the annual pool, as do the profits from all other operations, such as eggs shipped to New York on consignment; the profit on cases and case material, likewise all losses, are charged against the annual pool.

At the end of the year the board of directors distribute the money in the annual pool. The first thing paid from it is the dividend and then, if the balance is sufficient, a refund is made to members, according to the number of dozens of eggs shipped during the year.

If the balance of the annual pool is not sufficient to make a refund, then such balance is assigned to the five-year pool, which terminates December 31, 1924, and will be distributed to all those who have shipped during the five-year period.

The amount of the annual pool depends largely upon the success or failure of our storage season. Last year we had sold practically all of our storage holdings by Christmas. This year we were unable to dispose of all our storage eggs until the following month and for this reason it will not be possible to tell what our profits for the year will be until perhaps the latter part of January.

HANDLING STORAGE STOCKS

In 1923, the association put into storage about 55,000 cases of eggs for its own account, which is far in excess of any previous year. At the height of the season we had over $350,000 worth of eggs in storage.

The management must find ways and means of financing these eggs and also the greater problem of selling them all at a profit.

The last problem is the one that keeps the manager awake many nights and buoys or depresses his spirits from the heights to the depths, depending upon how the outlook appears from day to day. Every year he says he hopes he will never have to go through that agony again.

Perhaps it will be realized that with several hundred thousands dollars of money tied up in storage operations (one of the most highly speculative games in the world) it would be easy for a manager who is not a topnotcher to sustain a big loss in a few weeks—a loss many times greater than what it costs to hire the best manager on the Pacific Coast.

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Friendly Philosophy

BY THE EDITOR

TWO COLLEGES OF AGRICULTURE?

The demand for a Southern California College of Agriculture grows apace. It is doubtful whether any compromise will be acceptable to the increasing population south of Tehachapi.

J. C. KNOLLIN

Now that the Southern Branch of the University is so well established and so largely attended, the proponents of an agricultural college have additional leverage for their campaign.

Two regional committees representing the Farm Bureau are at work on the problem and it is believed the regents will take favorable action when various factions in the southern counties can be brought into line. Then it will be simply a matter of "selling the idea" to the State Legislature—and what will happen remains to be seen.

BUT CAREFUL STUDY IS REQUIRED

There is danger, of course, of splitting the university into too many units. It is unfortunate enough now to have the College of Agriculture and the University Farm separated. And the feeling is quite general that this situation must not be duplicated in Southern California.

On the other hand, it is said to be out of the question to establish the new agricultural college at the present location of the Southern Branch, in the city of Los Angeles. In fact, the limit of expansion at this site practically has been reached, necessitating some move before any plan of development can be considered.

THIS IS LOGICAL DEVELOPMENT

Even the most enthusiastic booster for northern and central California must realize that agricultural conditions are very different in the south. Local problems demand local study—not to mention the financial burden now borne by southern students and their families due to the distance they must travel in order to attend the schools at Berkeley and Davis.

Granting that the proposed arrangement is not ideal from the standpoint of co-ordination and economy in management, we must face facts brought about by our geographical and climatic conditions. California is unlike any other State; therefore she has problems peculiar to herself.

WHERE SHALL SCHOOL BE LOCATED?

This leaves open the question of choosing a location for the consolidated Southern Branch, where all colleges may be combined.

Riverside County, because the Citrus Experiment Station already is located there, feels that she has the logical site for the agricultural college. But some other communities view this suggestion with alarm.

No doubt the problem will work itself out to the best advantage of the majority of the people. At least nearly every one south of Fresno who is interested in agriculture proclaims the need. It is only a question of finding the logical means to a desired end, these citizens believe.

Those of us who regard the Bay District as the center of finance and culture, simply must how to the inevitable result of shifting population centers.

The proposed new educational institution should not detract in any way from Berkeley's prestige.

Cheap By-Products Make Pork at Low Cost

OF great local importance is an experiment recently conducted at the University Farm (Davis) in which the value of cull raisins, skim milk and whey, respectively, was determined and compared by feeding these products to pigs in conjunction with grain and tankage.

The milk products experiments confirm results secured in previous tests both here and at the University of Wisconsin. No data similar to those obtained with raisins, however, have been available heretofore.

The accompanying table shows at a glance quantities of the various feed combinations consumed and average gains.

Each of the ten lots consisted of ten pigs, graded as uniformly as possible, according to age, sex, weight, constitution and condition. Four breeds were represented.

TANKAGE NOT SATISFACTORY

Tankage used in the experiment had a protein content of 45 per cent, but was not of a high grade, some sacks being found to contain among other foreign substances some gravel and sand.

The poor results obtained with the lots fed tankage and barley indicate care is necessary in buying this product and in feeding low quality tankage to hogs.

The raisins in this test contained 12.26 per cent water; 3.63 per cent protein; 1.3 per cent fat; 2.22 per cent ash; 6.67 per cent crude fiber; 11.61 per cent nitrogen free extract; 62.31 per cent sugar. Raisins combined with rolled barley made a satisfactory and economical ration.

The lot of pigs fed rolled barley and skim milk made more rapid gains than those of any other lot and the amount of these feeds consumed per 100 pounds gain was not excessive.

A comparison of Lot 4 and Lot 5 shows that the combination of rolled barley and whey was not as satisfactory as the barley-skim milk combination.

It may be concluded however that whey, such as was used in this test is worth about two-thirds as much as a good quality of skim milk when fed to pigs weighing from 70 to 200 pounds in the fattening pen.

The lot receiving condensed skim milk condensed whey required more feed (dry basis) per 100 pounds of gain than the lots receiving whole milk and whey.

The departments of viticulture dairy industry and animal husbandry cooperated in the experiment.

Summary Table of Hog Feeding Experiments

Lot No.	Ave. Initial Weight	Ave. Final Weight	Ave. Gain	Average Feed Consumed Per Pig	Ave. Daily Gain	Average Feed Consumed Per 100 lbs. Gain	Total Feed Cons. Per 100 lb Gain
1. Rolled barley.....	47.80	97.92	53.18	Rolled barley.. 314.54	0.498	Rolled barley.. 591.49	591.49
2. Rolled barley and tankage	51.40	160.89	109.19	Rolled barley.. 378.23 Tankage 71.68	0.906	Rolled barley..... 346.42 Tankage 65.64	412.06
3. Rolled barley, raisins and tankage	52.00	164.19	121.4	Rolled barley.. 257.97 Tankage ..... 110.57 Raisins 156.70	0.986	Rolled barley..... 212.50 Tankage ..... 91.08 Raisins 129.08	432.66
4. Rolled barley, 1 part, and skim milk, 3 parts.....	54.33	212.2	157.87	Rolled barley.. 436.3 Skim milk.... 1308.9	1.611	Rolled barley.... 276.36 Skim milk 829.08	1105.44
5. Rolled barley, 1 part and whey, 3 parts	53.33	190.81	137.48	Rolled barley.. 427.66 Whey 1312.98	1.329	Rolled barley.... 324.73 Whey 972.29	1297.02
6. Rolled barley, 4 parts and conds. skim milk, 3 pts.	54.80	191.40	136.60	Rolled barley.. 419.1 Cond. sk. milk. 314.33	1.394	Rolled barley..... 306.8 Cond. sk. milk... 230.1	536.9
7. Rolled barley, 4 parts and conds. whey, 3 parts....	52.87	185.4	132.53	Rolled barley.. 426.9 Cond. whey.... 320.18	1.352	Rolled barley.. .. 322.12 Cond. whey 241.58	563.70
8. Rolled barl. 1 prt. rais. 1 part and sk. milk, 6 parts.	54.53	198.29	143.76	Rolled barley.. 232.59 Raisins ..... 232.59 Skim milk 1395.54	1.430	Rolled barley .... 159.87 Raisins .. .. .. 159.87 Skim milk 959.22	1278.96
9. Rolled barl. 1 prt., raisins 1 prt. and whey, 6 parts...	54.07	170.80	116.13	Rolled barley.. 227.9 Raisins ..... 227.4 Whey 1367.4	1.033	Rolled barley 197.23 Raisins ..... 194.81 Whey 1171.42	1564.46
10. Dry cracked barley and tankage.	51.87	122.42	73.0	Dry cr. barley. 301.7 Tankage 62.72	.653	Dry cr barley. .. 413.20 Tankage 85.92	499.22

(Lots 4, 5, 6, 7 and 8 were hand-fed for a period of 98 days. Lots 1, 2, 3 and 10 were self-fed for 112 days and lot 9 was hand-fed for 112 days.)

Dairy Sterilizers

IN testing a number of dairy sterilizers of four-can capacity, the vessels were filled with equipment, such as strainer cloths, milk cans, pails and coolers. After heating the sterilizers from room temperature to sterilizing temperature and then holding that temperature for twenty minutes, the average amount of fuel used per sterilization cost less than 4 cents, counting kerosene at 16 cents per gallon.

A frequent cause of high fuel cost is a heavy deposit of soot on the bottom of the sterilizer and on the burner. In tests conducted when the sterilizer was badly sooted, 28.6 ounces of fuel were required, while after the soot was removed the fuel consumption was reduced to 21 ounces, a saving of 7.6 ounces, or 37.8%.

Oftentimes a saving may be effected by turning down the burner somewhat after the sterilizing temperature has been reached, as in most types of sterilizers practically no better results are obtained by allowing the burner to continue full force. A good thermometer, however, should be the guide as to how far the burner may be turned down. It must be kept in mind that the sterilizing temperature of 212 degrees must be maintained for the full duration of the sterilizing period.

By test it was shown that when the burner of a sterilizer was turned down but very little, 24 ounces of kerosene were used, while when it was turned down as much as possible, only 21 ounces were used, showing a saving of 12½%.

Depreciation and repairs constitute the other items of cost. These are determined by the care given the equipment and by the material and design entering into its construction.—A. W. FARRALL, Agricultural Engineering Department, University of California.

Your Garden of Flowers

By HELEN TEMPLE

PROTECT PLANTS FROM WIND

We must provide protection when setting out plants and shrubs during the winter season. Little plants, big shrubs and middle-sized ones fall completely under the power of the winter winds if they are not protected properly. I have seen a driving wind almost completely disrobe perfectly respectable poinsettias and prim California Junipers, then sail blithely onward into the bed of brave perennials, where it worked havoc among them.

HELEN TEMPLE

The lesson was sufficient. We learned to look forward to the unadvertised California winds and provide against their bombardment. It does seem rather foolish, when we are out o doors on a perfectly glorious day, setting out things, to plant a bunch of homely shakes or barley sacks right next to a beautiful shrub. But it must be done.

Stake all evergreen shrubs when setting them out, if they are more than two feet high. The winds will not allow the roots to get a foothold if they are not staked down securely. Many fine plants and shrubs are lost, merely because of a constant swaying in the wind or even a mild breeze, when unstaked.

The most careful planting will not keep the roots in one spot, if the top growth sways the trunk of the tree or shrub backwards and forwards. Of course when plants or shrubs are heavily balled and the burlap is not removed, the smaller varieties will come through without staking, if the winds are not too severe.

Burlap sacks slid over stakes four feet high provide protection for small trees and shrubs. I used stakes of one-inch rough material—similar to lath—driving them into the earth while wet, then slid the sacks over them. Two sacks, set in the form of a V on the windiest side of the shrub are usually sufficient, unless the plant is tender and susceptible to frost; in which case it should be protected on all sides until hard winds and frosts are over.

Small plants that hug the ground when first set out have a distinct advantage over their finer brothers, but ever they should have protection from severe winter winds. The easiest method to protect little plants is to use broken shakes or box pieces. Place the protectors in position as you set out the plants, as it is much easier than going over the whole garden again.

For frost protection use the waxed paper covers which have become so popular among large gardeners. They are much better than an old tin can with one end knocked out.

VINES RECOMMENDED

"I want to cover up my house—it is so ugly," writes a reader. I advise planting vines; clinging, twining vines and vines that columnize.

Three of the prettiest homes in our little city are almost covered with Boston and English ivy, while the porch columns are covered with vitis vulpina or frost grape.

The most satisfactory vine for a background fence between the front and backyard in Southern California is the bignonia while the old fashioned honeysuckle may be grown almost anywhere in the State.

The finest vine for masonry walls is the Japanese creeping evonymous, which is very sturdy, though rather slow growing. It is worth waiting for, however as it is beautifully effective.

Plant Boston ivy in the sun, English ivy in the shade. Both vines do well in any medium soil and will climb to any height.

SCREENING BACK YARDS

While most of the readers of Orchard and Farm are suburbanites or real farmers, many of us are confined to a town lot. While I heartily approve of neighborliness, I do not approve of backyards and frontyards that are so neighborly as to run together. Furthermore, on the other hand, I do not approve of a great, high hedge or wall between neighbors, though I must confess that in many cases this would change many kitchen gossips into efficient housekeepers, with time to spare for raising a garden of flowers.

When planting the boundary line, [illegible] of the view that might be [illegible]. However, a back yard [illegible] directly into the neighbor's [illegible] or into an old-fashioned alley, needs to be hidden as much as possible.

It often is bad enough to look into our own backyards, without having an uninterrupted view of someone else's. A hedge eight or ten feet high across the back of the lot often is very satisfactory. Not only does it hide a multitude of sins, but it also adds to the appearance of the home. The green wall makes a background, which always causes the beholder to wonder what is on the other side. Furthermore, it is also a refuge for birds.

Cypress is not as popular for boundary hedges, either in the background or on division lines, as it was some years ago, though it still is planted quite largely. People often say, "Cypress makes me think of funerals. They are too severe in appearance."

One would not think of funerals when speaking of cypress if our grandfathers had not planted so many of them in numerous cemeteries.

GOOD TREES TO PLANT

Across the back of a lot tamarisk or athel tree, interset with rapid growing acacia, is very good. These trees furnish color during late winter and early spring, when we need it most. Both trees grow very quickly and easily and seldom are attacked by disease. We set these trees rather close together to make a showing as quickly as possible, but later, as they become too thick, remove about one-third to avoid root crowding.

The large-leaved privet makes an excellent hardy windbreak and boundary line hedge between homes, when trimmed back. At the rear of the house it should be allowed to grow at least six or seven feet high, while opposite the house it is best at four feet. If a boundary line hedge between driveways or front lawns is planted, use the small-leaved privets or myrtus. The variegated myrtus is very fine, when there is a green background and lawns extending to the boundary.

Roses are dormant at this time of the year, rendering transplanting or resetting easy. Prune rather severely when transplanting and be sure the roots are firmly imbedded in the soil. The most satisfactory method, when transplanting large bushes, is to remove all "twiggy" growth and old canes, leaving only a few of the healthiest vines. Then dig them up carefully, taking care to cut off all bruised roots before resetting.

Set into the hole, which must be large enough to allow the roots to spread out, then cover carefully to the top of the hole. Do not press the earth about the roots, but after filling the hole, allow water to run into it until thoroughly saturated and firm, then finish filling with pulverized soil and well rotted manure.

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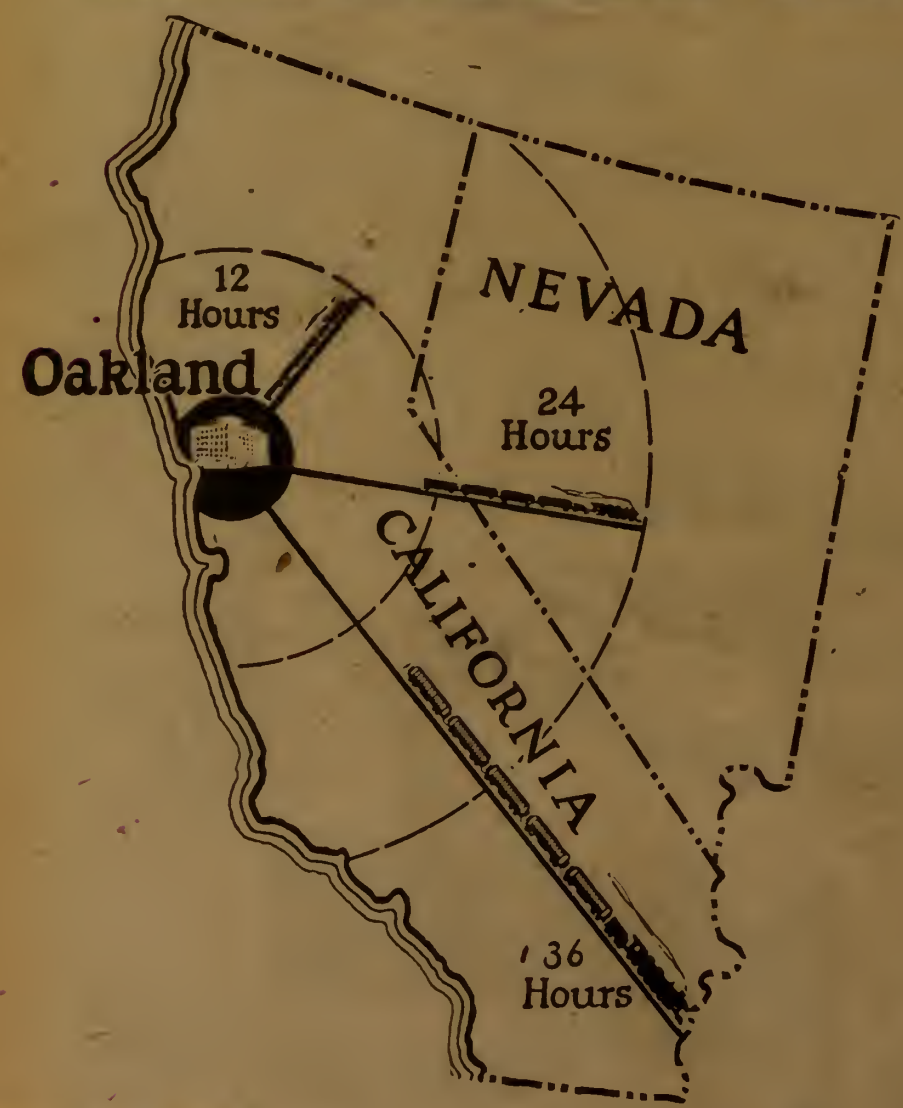

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Prices 15c up to February 1, 12½c from February 1 to March 15, and 10c thereafter
A. M. WEBB
227 Parkway Santa Cruz, Calif

DRYDEN POULTRY BREEDING FARM, Concord, Cal. White Leghorn and Barred Plymouth Rock eggs for hatching and day-old chicks from stock that has been been bred 15 years for egg production. Our pen of Leghorns won first in November at the Petaluma egg-laying contest Write for prices and information. Also some males of same strain for sale

STRONG BABY CHICKS For the farmer who must get his profits from actual production of eggs and market fowl, all from stock rigidly selected through many generations, from cocks with dam's records of 200 to 275 eggs per annum. February prices, $17 per 100 for White Leghorns $27 per 100 for White Plymouth Rocks PURE BREED HATCHERY, San Mateo, Cal.

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SANTA CRUZ COUNTY FARM BUREAU certified chicks from proven, inspected flocks. Send for list of accredited hatcheries ACCREDITED HATCHERIES, 106 FRONT ST., SANTA CRUZ, CALIF

THE WORLD'S four newest fowls Spencer Turkens, Russian Orloffs, Jersey Black Giants and Australian Kiwis Photo booklet 2 stamps Z. T. Spencer Rt 1, Santa Cruz, Cal.

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BEFORE YOU BUY! Get our prices on fruit trees, grapevines, both domestic rooted and grafted on resistant root, berry plants, etc. We will save you money in addition to supplying you with fully guaranteed stock. Write us list of your wants and request price list Wholesale and retail. J. F MILLER & SONS, Healdsburg, Calif

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FOR SALE—Oregon Plum and Brandywine strawberry plants, $1.00 per hundred or $7.50 per thousand. W. KELTHOFF, Occidental, Sonoma Co., Calif.

"PDB" Scores Success in Alameda County

PARADICHLOROBENZENE, popularly shortened for obvious reasons to "P. D. B.," is a comparatively recent discovery as far as the California fruit grower is concerned. Yet in one district alone, one dealer sold eight tons of this chemical during the past year! One ton is sufficient to treat 32,000 trees.

In Alameda County, according to Assistant Farm Adviser Hammond, more of this material has been used for borer control than in any other county. In fact, the Horticultural Commissioners are not only recommending its use, but in some cases requiring it, Hammond asserts.

Accurate records of results obtained in one orchard, in which 140 acres was treated, show that treatment cost less than 4 cents a tree, with control of 95 per cent.

Certain officials have held the opinion that the chemical could not be used to advantage on trees less than 6 years old But in Alameda County trees of all ages, including nursery stock, have been treated

In the latter case, one ounce to [illegible] trees was employed and only two [illegible] of 200 trees remained infested w[ith] borers. Replants, 2 to 4 years old [and] mature orchards also were treated w[ith] no apparent injury.

It is pointed out, however, that conditions may vary in different localities, and the chemical should be [used] only under the direction of those [who] have had experience with it.

The "P. D. B" is applied to the [soil] about the base of the tree. In some cases, it is said the odor of the chemical was noticeable six months after the application.

The increasing use of this material is expected to result in further price reductions, competition already hav[ing] brought down the cost from 22 [illegible] to 27 cents in Hayward —A J M

Cheese Opportunities

(Continued from Page 3)

day, having been pressed into a solid mass, the cheese is removed and dressed, that is, it is covered with cheesecloth and replaced in the hoop.

The next day, the cheese is removed from the hoops again, and placed on shelves in the drying room for several days. When the bandage has become dry, the cheese is stenciled with its particular brand, and paraffined. Paraffining is simply dipping the cheese into very hot paraffine, so that it is thinly coated. This prevents the rind from cracking and retains the moisture in the cheese.

Although apparently ready for use, the cheese first must be cured before it is ready for consumption. Freshly made cheese is tough and rubbery and lacks cheese flavor. In this condition, it is known as green or unripe cheese. In the curing process, which is accomplished by holding in a room at about 55 per cent for a minimum of six weeks to two months, the texture becomes soft and mellow and the characteristic cheese flavors develop.

Formerly the manufacturers in this State sent much of their cheese to the market before it was thoroughly cured and the reputation of California cheese was severely impaired for a long time. A great deal of work by the State Department of Agriculture and the University of California has resulted in a much improved quality. The cheese industry in California must surely come into its own.

Free Vita Gland Tablets Start Hens Laying In Twenty-Four Hours

Hens have glands just like humans and also require vitamines. Because they directly stimulate organs involved in egg production the mysterious newly discovered VITA GLAND tablets, crushed into bran/drinking water, turn winter loafers into busy layers almost overnight Science has discovered how to control egg production with essential vitamines and gland extract that works directly on the OVARIAN EGG producing gland of the hen The wonderful effect of gland stimulation is shown by a [illegible] test. Government experiment stations report that hens properly fed vitamines etc lay 300 eggs a year [illegible] the sixty of the average hen Leg weakness of baby chicks due to insufficient Vitamine B says The Official Bulletin Also says Hens start laying at an average age of 1[illegible]9 days when fed vitamines

Try This FREE BOX

EGGS EGGS, EGGS and [illegible] healthy chicks, prosperous flocks without fuss or bother or drugs or expensive feeds can be had. Just drop these tablets into drinking water. So simple to double your profits. Chickens now full of pep and life Nests full of eggs. Summer production at winter prices So confident are the Alexander Laboratories the manufacturer of the original and genuine VITA GLAND tablets that you will be amazed at results that they offer to send a free box for your own use This is how. Send no money, just name. They will mail two boxes, each regular, one dollar size, a generous supply When they arrive deposit only a few cents postage and one dollar with postman When your neighbor sees the wonderful increase of eggs in your nests let him have one box for a dollar and that your box has cost nothing $5000 [illegible] Kansas City bank guarantees your satisfaction or money back without question so write today and get [illegible] of extra eggs this simple easy way Write ALEXANDER LABORATORIES, 9068 Gateway Station Kansas City, Mo

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GLADIOLUS, beautiful colors, 100 bulblets and 25 one-year-old bulbs, $1.25, postpaid 15c. PHIL LAESER, Sun Prairie, Wis.

BOOKS FOR FARMERS

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LEAF TOBACCO, chewing, five pounds, $1.75, ten, $3.00, smoking five pounds, $1.25 ten, $2, pipe and recipe free. Pay when received CO-OPERATIVE FARMERS, Paducah, Ky

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560 ACRES LEVEL VALLEY LAND eighteen miles from Sacramento Fine fruit, grapes, nuts, olives and alfalfa, with water for irrigation Fourteen feet No surface hardpan $85 per acre $18,000 down balance time, at 6%. EBEN B. OWEN Resident owner Elk Grove, Cal.

POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land Near Los Angeles Write for literature CHARLES WEEKS, Owensmouth California

FOR SALE OR EXCHANGE—All or part of 200 acres level garden land, agricultural district suburban to Vancouver British Columbia. City water Owner, 1[illegible]60 [illegible] PLACE, LOS ANGELES

FOR SALE OR EXCHANGE Improved [illegible] acre ranch 80 miles south of Eureka Calif Spring water piped to house Owner 1815 S VERMONT LOS ANGEL[ES]

FOR SALE OR EXCHANGE Two Central Washington irrigated alfalfa farms $[illegible] and $35,000. Owner, 210 MAIN S[illegible] HUNTINGTON BEACH, CALIF

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CASH BUYERS want Western farms. Describe and state lowest price R A McNOWN 367 Wilkinson Bldg Omaha Neb

WANT TO HEAR from owner having farm for sale, give particulars and [illegible] JOHN J BLACK, Chippewa [illegible]

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FORD OWNERS BE COMFORTABLE [illegible] a limousine and make a [illegible] your Ford [illegible] $7.50 [illegible] CARTER CO [illegible] Francisco.

Home Farm Happenings

By ONE OF US

EE PLANTING CONTINUES—

ring the fruit harvest season w predictions that absolutely would be planted in our section the coming season. With the best fruit bringing little if anything, above the cost of picking and many tons going to waste under the trees, the planting of more trees seemed like a worse-than-foolish proposition. But the American farmer is a wonderful forgetter and a remarkable optimist. Otherwise he would not be playing the biggest gambling game

W. R. GUILFORD

is now talk of planting large fruit. "Prices cannot always say the farmers. "There's too od prune land unplanted."

true that all along the Sacra- River there are areas of splendid at properly prepared for irriga- fully planted and well cared ld produce maximum crops of With any sort of reasonable these lands in fruit will make far turns than in any other crop. ts always say that consump- utdistancing production and food must be produced to feed ary world. This kind of argu- nds strange to the man with fruit going to waste and no mar- but this same argument does in- folks who plant.

T. Kirkman Jr., the big nursery- of Fresno and the Pacific Coast, that his early season orders for are equal to some of their best s. They are mostly small orders, In the aggregate amount to thou- f trees.

here is more chance that trees in order will be well planted and d for than those in the big orders. get large acreage ready for plant- more of a job than the pro- figure on in many cases," Kirk- nts out.

d to do is to continue to expand our market for fruits. about overplanting has always with us even when there were not of the trees in bearing there now."

AKING HIDES INTO RUGS—

You know what a cow or horse or sheep pelt is worth—practically ing.

en have anything else to do, or pay any one to take a hide of a you are money ahead to let it —unless you want a nice rug side from almost any farm ani- makes a splendid rug, durable and tive.

re are a number of tanners who do the work. The cost of tanning horse or mule hide is $10 or $12; g sheep pelt, $4 or $5.

ave had a number of hide rugs uring the past three or four one roan Shorthorn steer, sev- eep, two mules, a number of An- ts, one black and white Hol- fer, one pure white Shorthorn me deer and sheep-killing dogs. one hog hide tanned for a rug. t recommend that. A mule or makes a nice cover for a big and a sheep pelt is a fine thing to f bed onto when the weather

ts are simply spread out and left over night to cool, then put into a grain sack and express to the tannery. In a two they come back, prettier n the hide was on the animal.

E TO FEED SILAGE

dry fall and most of them d—there is a time when comes in mighty handy.

are early rains and the good start before the cold, there is plenty of and sheep, otherwise ture is short it pays and feed a lit- until good grass grows

TO START ALFALFA

always "be- the best time Alfalfa acreage is the every year and to plant it perfect d, north

winds in the spring dry out and kill tender plants.

The best thing to do is to wait until warm weather, then irrigate the land, sow the seed and keep on irrigating.

THE HAUSER STOCK FARM

I spent a day at the Hauser Stock Farm, near Blythe, with R. H. Ehler, manager.

There are over 1000 healthy, thrifty, contented hogs on this ranch.

I do not recall ever having seen a big lot of hogs in better condition or more ably handled. Durocs, purebred but not registered, are kept. They are what Ehler calls the small-medium type.

"The only way I figure these red hogs are better than Polands or Berkshires is that they raise bigger litters," he said. "They are not better individuals; some are not so good. I prefer medium-size hogs. I can see no use for a 1000-pound hog, when the market wants a blocky hog weighing 190 pounds."

Ehler is from Page County, Iowa—a good hog man and a good farmer.

Runs School and Ranch

(Continued from Page 2)

which this fruit grower is principal has no agricultural department. Several attempts have been made to establish such a division, but they have failed, according to the head of the school, because of the preference of the students for commercial work and the unwillingness of farm parents to recommend their sons and daughters the same life they are leading!

"I believe this will right itself in time," Ayres added. "I believe in the future of our many agricultural industries or I wouldn't be into it so deep myself, and as present conditions are relieved, I look for renewed interest in agricultural education, especially if we can make the work as fascinating to the students as other studies, which unfortunately has not been the case in most instances."

KEEPS COST ACCOUNTS

Ayres keeps very careful cost accounts of his ranch operations and is conducting them on the basis that the business must pay a manager's salary of $4000 a year, plus fair interest on the investment, as well as all other legitimate expenses, in order to break even. "If it won't do that over a period of years, there is something wrong with the management or with the economics of farming," the owner insists.

As to cultural practices, Ayres is a believer in very *(Continued on Page 10)*

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PAUL CASE, Box 452, D-138, Brockton, Mass

He Manages Both School and Ranch

(Continued from Page 9)

modified long pruning; in fact, he has never cut back his trees, some of the peaches having been allowed to grow a little too tall. These are being headed back somewhat this winter. The prunes have had very little pruning so far. Wire braces, supplemented by props, are used. Peaches are carefully thinned. Only one season has spraying been necessary—when there was a bad attack of red spider. A centrifugal pump, operated with the tractor, supplements ditch irrigation.

"When my walnuts require all the space, as they will eventually," says the owner, "I think I shall have the ideal orchard from the standpoint of economical production. Walnuts look good to me because, for one thing, the trees are spaced far apart. Starting with a vineyard in which the vines are, say, ten feet apart, the expense diminishes as the number of plants or trees to the acre decreases. This is a fundamental principle.

"True, it takes longer for a walnut orchard to come into bearing, but because the trees are far apart, it lends itself most readily to inter-cropping. And, of course, walnuts may be called a non-perishable crop."

Ayres was asked whether his advantage of having a salary from his teaching position was not offset by his inability to farm the orchard intensively, thus making it yield its maximum income.

"No, I don't think so," he replied. "Some of my neighbors who had no other source of income, but who have made a business of farming their property have not fared as well as I. A salaried position is a mighty good insurance policy for the man who's developing a ranch that requires five or six years to produce an income—unless he has plenty of capital, which I did not have, even with the help of my brother.

"After the trees are in full bearing—that's a different matter. The owner might be better off to devote all his personal attention to his orchards. Hired help is uncertain, at best, even when the owner lives on the place as I do."

DEVELOPMENT COSTS HEAVY

Admitting that his property has doubled in value since it was acquired, Ayres points out that he has put into it all the money represented by this increment. "I find it has cost me $30 an acre for nursery stock, $30 to plant, and $100 an acre the first year for maintenance. This item was reduced to $75 the second year and $50 the third. But it has cost me more than $300 an acre to arrive at my present stage of development."

Thus it will be seen that this producer entertains no illusions as to the difficulties and expense involved in his project. Considered strictly as a business proposition, he admits other lines of endeavor appear to involve less risk and better returns on the capital invested.

But there are other factors, such as the change from indoor work and the consequent benefit to his health; the advantages for the children as compared to city life, the saving in cost of living through having fruit, poultry and a cow, as well as paying rent to himself, and last but not least, the pleasure of working out of doors with "growing things."

Here indeed is the "meat" that is enclosed within the "hull" of prosaic walnut production. For Ayres cherishes a real love for country life and fruit growing, which demands an outlet in actual accomplishment. He has learned that high school students and trees both reward richly the exercise of understanding tact, thoughtful study and hard work. Hence his successful intermingling of culture and agriculture.

Big Livestock Event

ABOUT the busiest man in Southern California agricultural circles these days is R. E. Lloyde, head of the agricultural department of Inglewood High School, who is to play "host" to three important organizations on January 25.

The Southwestern Berkshire Congress, the Southern California Purebred Livestock Association and the California Agricultural Teachers' Association, southern division, will hold meetings.

Stock judging by boys will be a feature of the day, and prizes will be awarded for essays on the subject: "What the Housewife Should Know About Pork."

Among those present will be Prof. Gordon S. True of the University of California; James A. McNaughton, Los Angeles Union Stock Yards, and Farm Advisers Gordon and Ernst.

Every one interested in livestock breeding and marketing is invited to be present. The judging will take place in the forenoon, and luncheon will be served at the high school cafeteria. During the afternoon the various meetings will be held.

Protecting the Dairyman

PENNSYLVANIA'S advanced dairy legislation protects both producer and consumer, in the opinion of C. V. Holman, secretary of the National Milk Producers' Federation.

Not only are oleomargarine dealers required to label their goods properly and prohibited from adding coloring matter, but ice cream makers are not allowed to use cocoanut oil or other fats, nor to employ paraffin or other injurious substances in the manufacture of chocolate coated ice cream bars.

The addition of foreign oils to milk or cream is prohibited. Evaporated skim milk must be sold in cans holding at least five pounds and labeled "skim milk—unfit for infants."

Avoid Bad Milk Flavors

GREEN alfalfa, turnips and other provender that gives milk a bad flavor should be fed just after milking time, instead of before, according to U. S. Department of Agriculture, which has been conducting tests to determine how this trouble may be avoided.

Even when alfalfa is used for pasture, it is recommended that cows be removed from the field four or five hours before milking.

Aeration has been found to help remove slight "off" odors.

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The ease of milking, and the amount of the yield is quickly affected by any external scratch, cut, chap or inflammation. It is foolish and costly to neglect these apparently "small" hurts.

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"EAT MORE MEAT"—*from Animals Like These*

Above—Broadus White Sox, grand champion steer of the 1923 International Livestock Exposition. This steer is an Aberdeen-Angus and dressed 67 per cent, weighing 1435 pounds at the age of 14 months. Below—Santa Rosa prize stock judging team; left to right: Don Weatherington, Frank Vought, William Braun and Wesley Jamison.

Boys Judge Animals

SANTA ROSA, the home of Luther Burbank, also is the residing place of some of the best young livestock judges in California. The boys shown below not only won the State judging contest at Davis last fall, but the Western States championship at Portland in November.

At the State contest fifty-two three-man teams from secondary schools competed. The Sonoma County boys scored 1708 points out of a possible 2250. The Chaffey Union team won 1687 points; Hanford, 1584; Van Nuys, 1581.

The animals judged included Holstein and Jersey cows, Poland China and Duroc-Jersey hogs, Percheron mares and draft horses, Angus and Shorthorn heifers, rams and ewes.

At the Pacific International, beef and dairy cattle, sheep, horses and swine were judged. The Santa Rosa team scored 2666 points out of a possible 3000. The second best record was 2213 points.

The best individual judging record at Portland was made by Don Weatherington, a junior in the Santa Rosa high school. Don lives on a prune ranch in Rincon Valley and is 15 years old. This is his first year in livestock judging.

The other members of the Sonoma team were:

Wesley Jamison, 15, a sophomore, who lives on a fruit and stock ranch in Bennet Valley. Although he never studied stock judging until this year, he was "high man" at Davis.

William Braun, 17, another young Rincon Valley prune rancher and a high school senior. Frank Vought, 17, a Santa Rosa lad taking his first year in livestock judging.

The agricultural department of the Santa Rosa high school was reorganized under the Smith-Hughes Act in [illegible] E. W. Everett began the work with eight students. Within a year the number increased to forty and now there are seventy-two students in this popular department.

Everett has two assistants: W. C. [illegible]ett, who specializes in poultry and [illegible] and W. Saunders, who handles the [illegible] project work. The livestock instruction is given by the head of the department.

The expense of the Portland trip was paid by the Santa Rosa Chamber of Commerce, which also sent the judging [illegible] International Stock Show [illegible]. The public spirited citizens of the Sonoma metropolis evidently consider their boys and girls the best advertisement of their city and county.

Tulare Gets Results

One of the most important lines of Farm Bureau endeavor in Tulare County is the hog auction sale, established six years ago. Nearly 250 cars have been sold in this way, [illegible] the growers of more [illegible]

[illegible] Utilities Department, [illegible] Tulare County has been especially active. Several important power [illegible] have been secured and [illegible] presented or adjusted for [illegible]

Prize Angus Steer

BROADUS White Socks, whose picture is shown at the left, was declared the grand champion steer of the 1923 International Livestock Exposition by Judge William Reid of London, England, who stated this was the finest beef animal he had ever seen.

This senior yearling steer weighed 1435 pounds and dressed 67 per cent, which is better than any other International grand champion since 1911. He was bought by the Sears-Roebuck Agricultural Foundation, which was recently established for the purpose of assisting in the solution of the financial problems of farming.

Broadus was butchered under the supervision of Prof. M. D. Helser of the Iowa State College of Agriculture, who made a careful laboratory record of the percentage of various cuts. The choice portions were presented to President Coolidge, Secretary Wallace, John Clay and Julius Rosenwald for their Christmas dinner. The hide was mounted and given to the University of Illinois. Rosenwald furnished the funds for the Sears-Roebuck Foundation.

White Sox was a black Aberdeen Angus bred and raised by A. A. Armstrong, the veteran Angus stockman of Carmargo, Ill. It has been twenty-two years since the Sucker State raised an International grand champion steer and Armstrong feels correspondingly proud of the 1923 achievement.

Broadus' white hind feet—which gave him his name—disqualified him as a breeder, but not as a beef maker. When he had attained the weight given above he was only 14 months old, having gained an average of 100 pounds per month from birth. He was sired by the well known show bull, Deverly, now at the head of the University of Illinois Aberdeen-Angus herd.

Last fall Broadus was fed silage and alfalfa, with corn, oats and bran. About the first of last March he was given a ration of wheat, oats, barley and corn. This mixture was ground together and fed with a little oilmeal and molasses.

According to Armstrong, it was exercise that made White Sox a prize winner. Every night he was allowed the run of a bluegrass pasture.

Because of the past success of Pacific Slope stockmen in producing fancy beef, it is possible that Broadus' title soon may pass again to a California prince of the bovine kingdom.

Cheaper Cuts of Meat

THE reason for the insatiable demand for the higher priced cuts of meats is the fact that the average housewife does not know how to select, prepare and cook the cheaper parts of the carcass, according to the National Livestock and Meat Board of Chicago, which will send free of charge to any reader of ORCHARD and FARM a meat cook book, containing this information.

Two-thirds of all the meat produced in the United States is consumed in the large cities, reports the board, which has discovered that in the well-to-do residential districts 80 per cent of the meat used is steaks and chops, while the laboring classes use only 40 per cent of these high-priced cuts.

Seven Good Farm Crops

Cool, moist Pacific Coast lands have been found well adapted for growing celery which compares favorably with the famous Michigan product.

Fence-high second crop of kafiro maturing in December on the Timkin Ranch, near Calexico, Imperial Valley. Note twin steel silos, supporting water tank, in the background. The house also is of metal construction.

This splendid growth of vetch shows what one good legume will produce under favorable California conditions.

This thrifty tobacco field is not located in Kentucky, but in Central California, where many tons of fine leaves were grown during war times. The "weed" now is grown in San Diego County.

Prof. P. G. O'Gara, who did good blight control work in the Sacramento Valley, inspecting a fine crop of potatoes which he grew close to a Utah copper smelter.

Mowing Alsike clover for seed in the Willamette Valley. The cutter bar attachment windrows the crop.

This heavy crop of honey sorghum grown by Fred Gunderman on his ranch near Calexico, Imperial Valley, was ready for the silo in December.

ORCHARD *and* FARM

STATE LIBRARY

Winter Sunshine in a California Ornamental Nursery

JANUARY 27, 1924

Real Boys' Farm Grows Good Character Crop

Love Animals and Machinery

THE farm offers the best solution of the boy problem, believe the managers of the Junior Republic, a California agricultural school for adolescent lads. While the youngsters are raising crops and animals, their standard of living and ideals of citizenship also are elevated. Useful wage workers are the principal product of the farm, which changes liability lads into those which are a valuable asset to the community.

By O. H. BARNHILL

THE most significant fact, perhaps, about the California Junior Republic, the big boys' farm near Chino (San Bernardino County) is that none of the students comes from country homes. "Children who grow up amid the wholesome surroundings of fields, orchards and feed lots seldom become problems to their parents and the community," testifies C. E. Wright, superintendent.

"It is the town boy who often is unable to adjust himself to life and its duties. In many cases it is not the fault of the lad, but of the unnatural environment and conditions with which he has to contend. In our miniature republic we provide approximately ideal conditions for the development of character. Our main crop is useful citizens—all others are subsidiary."

Before going further, the reader should rid his mind of any preconceived idea that the Republic is a reform school or a penal institution in any sense of the term. The students are not detained by force, and physical punishment is unknown. The only involuntary acts are those which the boys impose upon themselves.

Republic boys are those who, for one reason or another, have failed to solve their problem of life. The fault may be their own, or it may be the community or their parents that are to blame. In many cases they do not have a satisfactory home life. On the Republic farm the boys learn useful occupations and most of them become good citizens.

The farm consists of 280 acres of good land five miles south of Pomona. The buildings are located on the eastern slope of a high hill overlooking the Chino Valley, famous for its alfalfa, dairying, sugar beets, walnuts and apples. General farming is the rule, although a six-acre pear orchard is being developed. Visitors often wonder why enough vegetables for home use are not grown.

THE FARM'S BEST CROP

"Our farm is not a money making project, but a character building institution," explained E. S. Messer, business manager. "Our chief business is to develop useful citizens, not to make and save money. Of course, we raise a few vegetables, but our soil is too heavy for general garden purposes.

"Since most of the vegetables used in Southern California are produced by Orientals, gardening does not offer an attractive career. Furthermore, the average boy does not like garden work. We aim, as far as possible, to let the boy choose his occupation.

"Taking care of chickens is another kind of farm work which most boys dislike. The one who will succeed with poultry is exceptional. Therefore, we do not produce all the eggs and fried chicken needed to feed our students."

Well, what kind of work do boys like? inquires the cynic. Something big, something constructive, is the answer.

These lads are learning to perform real productive work, and are proving that the country is the best place to make men. Group activities tend to take the loneliness out of farm life.

Typical room of a citizen of the Junior Republic. The boys delight in pictures and pennants.

Ed Fitch and the cow from which he drew six tons of milk in 142 days.

Three typical Junior Republic calves. The finest Holstein stock is used in the big farm dairy.

From the high hill to which the writer had been taken, a dozen boys could be seen in the fields below, plowing corn and pitching hay in the sweltering sunshine with the mercury hovering near the 100 mark—in the shade.

Junior Republic boys are a live lot, strong and athletic. They don't mind hard work if they can do big things in a big way. Tell them to get up at 4 o'clock in the morning to bale hay and they will arise at that hour without a murmur and labor all day to feed the hungry baling machine.

Give a boy a tractor assignment and he is "tickled to pieces," sitting enthroned upon the huge mass of machinery, the envy of all his fellows, thrilling at the sense of power which he is able to control. Running a mowing machine and a hand hoe are two jobs as different as day is from night, so far as their desirability is concerned, in the eyes of the average boy.

Small sheep and hog departments are maintained. The managers believe that the latter with great profit might be enlarged considerably. A new hog barn is very much needed, as well as several good brood sows. Guasti Brothers in other years donated $2000 worth of purebred Berkshires to the Republic.

The Republic dairy is a pleasant surprise to all visitors. Its remarkable success proves three things: That boys like big animals, that they don't mind milking cows under favorable conditions, and that growing boys can best be raised with the aid of purebred livestock.

"Our boys get up at 11 o'clock at night and 4 o'clock in the morning to milk heavy producers and never whimper sleeping near the barns in order to give the cows the best possible care," related Prof. R. A. Condee, supervisor of the farm and principal of the high school, who feels a pardonable pride in the herd which for eight years he has labored to develop.

DEVELOP DAIRY HERD

In 1915 the farm herd of grade cows was not supplying enough milk to meet the needs of the Republic. The late Dr Henry B. Stehman of Pasadena, one of the wisest and best patrons the Republic ever had, recommended the replacement of grade cows with purebred Holsteins. This was not done by selling the former and purchasing the latter, but by gradually building up a purebred herd from a small amount of foundation stock.

"This method not only taught the boys many valuable lessons in breeding and feeding," explained Prof. Condee "but it also afforded the boys an opportunity to feel the joy of accomplishment. The pride they feel in constructive achievement acts as a powerful incentive to worth-while work."

Rural residents who are looking for a way to keep boys on the farm might obtain here some valuable ideas. Not only is there a strong dollars-and-cents appeal in the work of building up a high-producing herd of purebred cows, but the opportunity of winning prizes in competition with other breeders and of exhibiting at fairs stimulates honest pride and kindles ambition, as club workers are well aware.

COWS WIN MANY PRIZES

An account of all the prizes won by Republic dairy stock reads like the list of a professional breeder's winnings. In 1921 the boys won 90 per cent of the first prizes for which they competed at the State Fair and a three-day butterfat contest, in which all breeds competed, besides innumerable county fair premiums in that and other years. The State inspector never has rated their dairy lower than 91 per cent.

The foundation stock of the Republic herd consisted of four heifers purchased in 1916 and one bull calf six weeks old. Although the heifers were from unproven dams and were bought at low prices, one of them during her producing lifetime has given enough milk to pay 7 per cent on a valuation of $3000. The bull calf was selected by Dr. Stehman, and grew into a State grand champion.

The Republic cows average 16,000 pounds of milk, containing 6[illegible] pounds of butter, according to official test. Ida De Kol Pearl (Continued on Page 9)

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
JANUARY 27, 1924

Old Man Uncertainty Losing Grip on Agriculture

Increasing Efficiency of Statistical and Market Bureaus Reduces Gambling Element—A Glimpse Into Future of Farm Production and Marketing

By THE EDITOR

IT is an autumn evening in the year 1935. John Jones, California farmer, has settled down in an easy chair to enjoy his evening cigar and radio concert.

"Radio XYZ," remarks the loud speaker on the mantel. "Official Government forecast: There will be serious lack of precipitation during the fall months, severe frosts during January, and unusually heavy rains in February and March."

Farmer Jones lays down his paper and listens more attentively.

"Favorable weather conditions and forecasts in the Middle West, East and South have resulted in unusually heavy planting of wheat, comprising a total area of ——— acres, with an estimated total yield of ——— bushels."

Then followed exact statistics comparing this estimated yield with that of previous years.

"The California Division of the Farmers' Grain Cooperative advises a 15 per cent reduction in wheat acreage this year and points out the world situation is more favorable than usual for barley," continued the mysterious voice from the other.

NOT IDLE DREAM

Just a flight of fancy, to be sure! But entirely within the range of possibility, according to E. E. Kaufman, popular statistician in charge of the California office of the Bureau of Crop and Livestock Estimates, Sacramento.

"There seems little doubt," said Kaufman recently, "that the Government Weather Bureau eventually will develop its system to the point where very accurate forecasts of rainfall, temperature and storms can be made for weeks, months and even years in advance. Probably no official of the Bureau would admit it, but it certainly looks feasible in the light of recent discoveries.

"Then, assuming that our department will have further perfected its methods and scope, and will have available exact reports for many years back, there is no reason why the work of the two Government agencies can not be co-ordinated, in order to give the farmer definite information upon which to base his plans. Augmented by co-operative agreements upon the part of the organized farmers themselves, this system ultimately should solve our greatest agricultural problems."

But all this concerns only possible future developments. We are more interested in what Kaufman and his associates are doing for us right here and now.

To begin with, we doubt whether the fruit growers, poultrymen, livestock breeders and other farmers of California are taking the fullest possible advantage of this work. Any one who desires to receive the bulletins issued by the Sacramento office need only send Kaufman his name and address, stating what information is most desired.

HOW BUREAU FUNCTIONS

But many, of course, secure the statistics through newspaper and periodical reports, co-operative association bulletins, radio messages and other media.

Just what facts are gathered and disseminated by this important Government Bureau? How does it obtain the information upon which estimates are based? What benefit has been derived to date? How can our farmers best employ the information thus made available?

Briefly the work is under the general supervision of Dr. H. C. Taylor, head of the Bureau of Agricultural Economics at Washington, who has organized a remarkable system of reporting in which the various States co-operate. W. H. Calandar is statistician in charge at the main office. An average force of about 125 men and women is maintained.

In California, assisting Kaufman are two field men and two office employees. The State government pays part of the salaries and traveling expenses, and the figures collected are accepted as official by the State Department of Agriculture, and used in its reports.

But the regular force is only the "backbone" of a far-reaching system. The county horticultural commissioners report regularly on conditions in their respective districts, and questionnaires are sent out to several hundred representative producers, who act as "reporters." Farm Bureau officials also assist. In addition, the various marketing associations co-operate closely with Kaufman's workers.

"It is in connection with organized agriculture that we can do the most good," the veteran statistician points out. "The marketing associations can use our figures to much better advantage than the individual. In fact, the benefit is mutual. At one time the Raisin Association came to us for information concerning grape acreage! Now we go to the association for such facts. We get much valuable information from producers' associa-associations. All such organizations, in fact, now rec-

(Continued on P. 7)

Poultryman Should Take Lesson From Hens and Advertise

Successful Examples Indicate Need of More Publicity to Move Eggs and Breeding Stock

By W. J. DRYDEN

WITH the increase in number of commercial poultrymen who are interested in breeding there is reason to question the future of this branch of the poultry industry.

Like the commercial egg business, the breeding end will have many successes and failures in the future as it has had in the past. In fact, competition will be keener and the number of failures will be correspondingly larger.

It may also be true, however, that those who succeed will receive more for their efforts, for the breeding game requires more work, knowledge and capital than the commercial egg field.

Success in breeding will depend not alone upon knowledge, willingness to work and sufficient capital, but it will also demand more and better advertising signs on the part of poultry breeding associations and individuals.

In studying successful poultry enterprises we find that without exception they are leaders in their field in the art of advertising. The successful breeders, for example, are those which exhibit at the fairs and shows and in poultry journals and magazines. The same holds true of other specialties.

OUTSTANDING EXAMPLES CITED

The work of W. S. Freeman of Hayward is an example of big success built upon personal service and knowledge of advertising. In the breeding game we have the breeders of the Santa Cruz Valley; J. A. Hanson of Corvallis, Ore.; J. W. Parks of Pennsylvania, the Barred Plymouth Rock breeder; M. E. Atkinson of the Hollywood Farm, Washington; George Schaefer, Hale Sacredo Breeding Farm, Menlo Park, breeder of Russian Orioff turkens; the Tancred Farm, and others.

Such breeders have spent thousands of dollars each year in printed catalogues, mail order circulars, publication advertising, exhibitions at fairs and shows, egg-laying contests, cockerel auction sales and personal field service work.

J. W. Parks stands at the head in his advertising campaign, having set aside an exceptionally liberal sum for exhibits and publication advertising work. His place on the Coast is now being taken by J. A. Hanson, who has just published one of the most complete catalogues ever printed by any poultryman in the West, and the first time the aeroplane has been used for advertising poultry, so far as the writer knows, was by Hanson at Corvallis.

The advertising campaign conducted by Hanson is perhaps the most interesting of all. In 1913 he purchased a run-down farm. At least two poultry failures were credited to the place, one of which swept with it a large mercantile business in Corvallis. Hanson not only started out to make money, but also decided to let the world know about it. He got the best of stock, built new buildings and started a new system which he set out to explain to the poultrymen.

In his catalogue he described the origin of his stock and told something about their management and housing. Then he published circulars which outlined his system of feeding and management. This service was supplemented by personal correspondence and suggestion.

USES FARM PAPERS

His next step was publication advertising. As soon as he had stock and eggs to sell, he inserted advertisements in the leading farm journals and newspapers of the Coast. This was followed by successful entries in the egg-laying contests of the country.

Then came the auction cockerel sales, where his birds received the highest price, due to their advertised value and records. And now Hanson is making use of the aeroplane in a novel advertising stunt at Corvallis.

The plane, carrying a photographer, flew around the "College View Farm," and the aerial camera man snapped photographs which Hanson is using in his advertisements. It may not be long until we will see "Eat More Eggs," "Buy Better Stock," or some other such writing in the sky.

At the same time Hanson bought his original stock from the Oregon Agricultural College, there were many others who purchased the same stock. Most of these men now have closed out their poultry business, while others are trying to get established on a paying basis.

It is not safe to say that the difference between Hanson and the "failures" lay in advertising, but undoubtedly advertising was a big factor in the latter's success. He has proved beyond doubt that the advertising of breeding stock is responsible for a fair percentage of his entire business profits.

Again, with George Schaefer, we have an example of how advertising could make an unheard-of breed not only well known.

(Continued on Page 10)

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Farmer's Viewpoint

FALL AND WINTER IRRIGATION

This is another year when we are a sorry we did not give all the trees a thorough fall irrigation. If we did not have to consider expense, the pumps would always be started after the fruit was picked and the orchards given a good soaking, even if it started to rain.

The fall weather has been so dry that, even though the trees are in fine condition, it would surely have been of some benefit to have filled the soil thoroughly with water again.

THE SOFT-HEARTED FRUIT GROWER

"It takes a real lover of Nature to be a success as a fruit farm worker," comments a prominent San Joaquin Valley grower. "Careless farm hands every year cause damage to orchard trees amounting to thousands of dollars. Even a man who wouldn't hurt a pig or a cow will ruthlessly bruise or break a living, breathing tree. It is hard for the real horticulturist to see any distinction between the trees he loves and the lower animals. Both are equally alive to him.

"True, we prune and cut our trees. But so does the stockman dock his lambs and mark his cattle, while the veterinarian often finds it necessary to do surgical work in order to cure animal ailments.

"Show me the man who treats his trees like the living creatures they are, and I'll show you one who is likely to succeed as a fruit grower."

Too bad we can't always get such men to do our cultivating!

A WARNING TO THE LAND BUYER

As an indication of how soil and climatic conditions vary in a comparatively small area in California is cited the experience of Fletcher Ayres of Visalia (Tulare County).

Ayres now owns and lives upon a fruit ranch about six miles from town, where he is developing fine orchards of walnuts, peaches and prunes. He is well pleased with living conditions, as well as factors entering into production of fruit.

But at one time he determined to develop another place 12 miles out in another direction, leased his home ranch on shares and moved to the new location.

Not only were climatic conditions very different, involving strong winds, dust and higher summer temperatures, but also the soil and irrigation problems that confronted him proved very discouraging.

The result was that he sold the new place and returned to his original location, much more satisfied with it than formerly.

CALIFORNIA HAS MANY STATES IN ONE.

This is a situation found in nearly every county of California—something that it is difficult for the Easterner and particularly the man from the prairies of the Middle West, to understand. One side of a Southern California highway may be practically frost free, and the other side subject to damaging cold injury. One "forty" of a ranch may be underlaid with hardpan and the balance consist of loam with gravely subsoil. One small district may be impregnated with alkali, and an adjoining district famous for its deep, fertile soil.

Other States, particularly those including mountain ranges, have something of this same problem to contend with, but not to the extent that we have in California.

Such a condition emphasizes the importance of individual study. It is very hard to lay down general rules for producing even a single crop in various parts of this State.

The prospective investor must watch his step and learn what others have been doing nearby. The producer must study and solve many of his own problems as they arise.

What's New? — Keeping Abreast of Agricultural Progress

Plan New Livestock Show

A GREAT livestock show, similar to those held at Chicago, Kansas City and Portland, is being planned by the Southern California Purebred Livestock Association. The exhibition is to be held at Los Angeles next winter, if the movement succeeds. The Los Angeles Stock Yards is expected to take a prominent part in the project.

Bankers Boost Wheat Prices

REPRESENTATIVES of the Oregon Bankers' Association and leading co-operative organizations of the State recently indorsed the American Wheat Growers' plan for boosting the price of wheat.

It is proposed to levy a tax of 7 cents a bushel on all wheat sold from farms in the United States and pay a bounty of 30 cents a bushel on all wheat exported from the country. It is believed this would result in raising the price of all wheat sold within the United States 30 cents, which would mean a net gain of 23 cents on local sales.

Congress is to be asked to erect a tariff wall to keep foreign wheat out of the United States.

Farmers Making More Money

IN spite of the prevalent complaint of agricultural hard times, the money value of 1923 crops harvested by the farmers of the United States was 12 per cent greater than of those raised the previous year, according to Secretary Wallace.

The value of wheat, however, decreased 11 per cent. Lesser shrinkage was suffered by rye, rice, clover seed, cranberries, peaches and pears, but the value of all other important crops increased.

The past year was a prosperous one for sheep men, fairly good for dairymen, less satisfactory for hog producers and distinctly discouraging for range cattlemen.

Oil Increases Prune Crop

C. A. RATCLIFF, Marion County (Oregon) prune grower, reports that on half of his orchard the 1923 crop was doubled by spraying the trees with oil. The exact figures were, 979 bushels on the sprayed trees and 483 on those unsprayed.

The first spray was put on one week in advance of the bloom and consisted of six barrels of oil, three-fourths pint Black Leaf 40, three-fourths pint casein spreader and 100 gallons of water.

The spray was repeated four days later and again when the trees were in leaf, the chief purpose being to kill thrips. In the last spray, arsenate of lead was substituted for the nicotine.

Ratcliff attributes the heavy bearing of the sprayed portion of the orchard chiefly to the physiological effect of the oil spray upon the trees.

Windbreaks Prove Value

THE Orange County Farm Adviser in co-operation with the Citrus Experiment Station, has been conducting wind damage surveys through certain portions of the county visited by a desert wind in October. The object of this survey was to determine the principal factors involved in the cause of the damage in the groves visited by the wind.

It was found that the prevailing cause of greatest damage was lack of sufficient moisture in the root zone previous to and during the storm. Numerous trenches were dug in damaged orchards to a depth of four or five feet to study the soil conditions throughout the root zone, and in every case the amount of damage was in proportion to the dryness of the soil at the time of the wind. Windbreaks were found to be of particular advantage during the wind storm. The survey brought out very forcibly the need for more windbreaks in the exposed regions.

Sodatol Blasting Test

VERY successful was the recent Washington field test of sodatol, new explosive being sold by the Government at 40 per cent less than dynamite prices. The experiment took place on the Wilson ranch and was witnessed by Governor Hunt, who predicts a great future for sodatol, and 200 farmers, county agents and business men.

A stump thirteen feet in circumference was blown out with twenty sticks of the new explosive, while thirty-five sticks were necessary to remove a seventeen-foot stump. A twenty-foot stump was annihilated with sixty-six sticks of the new explosive.

One ton of sodatol contains 1760 pounds of explosive. The price in Western Washington is $5.45 per hundredweight. A fifty-pound box contains 120 sticks of powder. A carload of sodatol has been ordered by Thurston County farmers.

Hold Livestock Meetings

A SERIES of ten monthly meetings have been planned by the Southern California Purebred Livestock Association. The relation of livestock to horticulture and the value of stock shows are among the subjects to be discussed.

Association dues have been placed on the following basis: Stockmen owning fifteen animals or less, $5; sixteen to fifty animals, $10, over fifty animals, $15.

Vaccinating for Chicken Pox

DURING the past autumn chicken pox has caused heavy mortality in a few flocks in Southern California and a decided decrease in production in others according to the Extension Service. Although the disease has been quite prevalent in most cases it has inflicted no serious damage.

Birds vaccinated with serum furnished by the veterinary division of the University of California have quickly recovered and returned to heavy laying in short time. No bad effects followed the operation, the birds being improved in physical condition.

Spraying Reduces Acidity

"CALIFORNIA experience that arsenate of lead sprayed on orange trees greatly diminishes the acid content in the fruit has been found true in a number of groves in widely separated districts in South Africa," writes C. P. Lounsbury, entomologist of the Union of South Africa.

"The acid content of the ripe fruit is only about one-third that of ripe fruit from unsprayed trees. One grower who sprayed his fruit in 1922 submitted samples of the 1923 crop for analysis and, although the grower states that no spraying was done after the 1922 crop was removed, the 1923 oranges are decidedly deficient in acid.

"The spraying in South Africa has been to check the ravages of the tortricid, the work being done in the summer season."

Terminal Costs Excessive

THE excessive cost of moving farm crops at terminal points and unreasonable amount of time consumed in the operation are well illustrated by the fact that it takes two and one-half days' time and $240 in money to move a car of potatoes from the New York terminal to a dealer, although it requires only two days and $112 to ship the spuds 700 miles from Northern Michigan.

A single railroad terminal improvement at Chicago cost $150,000,000 and the land on which a New York terminal stands is so valuable that the ground covered by a freight car could be sold for $1,000,000, according to James R. Howard, in a recent address before the American Farm Bureau Federation convention. Farmers pay a large share of the cost of these unnecessarily expensive improvements, points out this authority.

Ben Gonnadoo it Says

"TH best way t' make money is t' spend money intelligently," says a banker who writ an article in a magazine I read yestiddy. Which explains why I ain't never made no money. I never have none t' spend, intelligently er otherwise!

I've been gonna set down some thoughts on this here subject for several months, but seems like somethin' always interferes with my lit'rary efforts. Only th' other mornin' while I was doin' some desk work durin' a rainy spell, I happened t' think I had left two sows an' some little pigs in an old pen down by th' creek. That evenin', soon as th' storm was over, I went down there, but it was too late. They was all drowned!

Now I'll have t' work all th' harder at my writin', but I guess it'll be a long time before I kin turn out enough copy t' pay for the pigs! As soon as th' editors learns t' appreciate my stuff a little more, I figger on gettin' up farmin' entirely and devotin' all my time t' tellin' others how t' succeed!

But t' return t' my original subject, namely, viz., i. e.: "How to Make Money."

I think they is only one sure formula, an' that is t' be born lucky! Some fellers has all th' good luck an' some has all th' bad. I ain't complainin' as to which class I belong to, but I kin assure you most heartily it ain't th' first!

Now fer example, this mornin' I started t' town t' see if I c'd get credit t' buy some new tires fer my flivver. On th' way in I blowed out two of th' old tires, an' not havin' any spare I had t' walk two miles er else drive in on th' rims.

Bein' rather tired anyway from walkin' all over th' country yestiddy, while lookin' fer some of my hogs that got out when th' gate fell t' pieces, I nacherly decided t' take a chance on ruinin' in on th' rims.

But as luck would have it, they was a detour in th' road an' I had t' drive through a lot of rocks, with th' result that both th' rims was bent an' smashed, not to mention four spokes that cracked!

Now, instead o' buying new tires, I reckon I'll have t' get new wheels. They'll cost more than th' second hand dealer 'd offer me for th' whole car! An' yet they was talkin' of letting Henry Ford run fer President. Well, if he does, I fer one, won't vote fer him!

BEN GONNADOOIT

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Propagating Blight Proof Pears

Oregon Experimenter Finds Varieties Immune to Deadly Disease—Tests Now Under Way

By PROF. F. C. REIMER

Superintendent Southern Oregon Experiment Station

PEAR blight is the greatest hazard in pear growing and the losses from this disease are enormous. In many regions it has completely wiped out the industry. In practically all pear districts the losses sustained from this disease are heavy.

In Southern Oregon it takes a heavy toll annually, and at times the industry has been threatened; thousands of trees have been destroyed, and in some cases entire orchards have been dug up, because the cost of controlling the disease has been too great.

No perfect blight remedy has been found. The only remedy now known is to cut out and destroy all the affected portions and blighted trees, in order to keep the disease from spreading and destroying the entire orchard.

The only solution of the problem appears to be in finding or producing stocks and varieties which will naturally resist the disease.

Since pear blight is not known in any other country than America, and since all the known pears are natives of other countries, the writer realized that the only hope was in collecting all the known wild varieties of pears, and as many cultivated varieties as possible, bringing them to this country and testing them for blight resistance and susceptibility.

For this reason we established here at the Southern Oregon station the most complete collecton of pears in the world, including all the known species and hundreds of varieties. This collection includes all the varieties cultivated in America, the wild species from Europe, Asia and Africa and a large collection of cultivated varieties from Europe, China and Japan.

These have been thoroughly tested by inoculating them with pear blight germs. It has been found that nearly all of them are susceptible but fortunately a very small percentage of resistant types have been found.

These are the first immune pears ever recorded in America. Among these immune types some appear extremely promising as blight-resistant stocks on which to topgraft our commercial varieties.

Since pear blight annually causes losses amounting to millions of dollars, by destroying the root system, trunk or framework of the tree, the great importance of finding and planting trees with a resistant root system, trunk and framework can hardly be overestimated.

All the newer plantings of pear orchards in Southern Oregan consist of such resistant trees, introduced and recommended by this station.

PROPAGATE RESISTANT TYPES

These resistant types are now being propagated as rapidly as possible. At the present time they are being tested for vigor, suitability for wet and dry soils and heavy or light soils, resistance to insects, resistance to extreme heat in summer and cold in winter, and especially to determine which of these will make the most satisfactory union and growth with our commercial varieties when these are grafted on to them. For this purpose test orchards are being planted at the station and in commercial orchards on various types of soil throughout the valley.

We have found that the seedlings of even the immune varieties will vary greatly in their resistance to blight, a small percentage proving immune, while a large proportion will blight more or less and many of them seriously. This is unfortunate, and the only way to reproduce these resistant stocks, true to type, is to propagate them from either branch or root cuttings. This can be done only where soil and climatic conditions are suitable.

For this reason cuttings have been sent for propagation to several nurseries in regions where the climatic conditions are favorable for such propagation. The results will be awaited with great interest.

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Old Man Uncertainty Losing Grip

(Continued from Page 3)

ognize the value of and necessity for accurate statistical information. Many have their own statistical departments.

At present the work of the Government Bureau emphasizes the gathering of statistics rather than the drawing of conclusions from them. The idea is to make available to all accurate information from a disinterested source. This information can be used in various ways. Each year the cumulative value of the figures increases.

Evidence of the importance of the data gathered is the interesting method employed at Washington for giving out the reports to the press.

RELEASING THE FIGURES

The crop reporting board meets each month to consider and release the reports sent from its field men all over the United States. Transmitted in code direct to the Secretary of Agriculture these reports are taken by special messenger to the secretary of the board.

Sitting with the board each month are two members of the force called in from the field and one "outsider," such as a representative of the Farm Bureau Federation.

All those present are locked in a room from 8 a. m. to 2:30 p. m., lunch being brought to them and no other person being permitted to enter or converse with the members. Telephone wires are disconnected and every precaution taken to prevent "leaks" which might be capitalized by unscrupulous stock market operators.

When the reports have been multigraphed, they are laid face down upon a table—one copy for each news representative, and the newspapermen are admitted to the room, but required to stand behind chalk lines until a gong is sounded.

At the given signal, all rush forward, seize the papers and get in touch with their various publications by wire or messenger. Most of our readers have seen the summary of these monthly reports as published in the daily press.

But in addition to the official figures released at Washington, current reports are made available from week to week by the local office. All estimates are revised before the final report for the year is made up.

PIG CROP ESTIMATED

One of the most interesting surveys made by the bureau as a whole is the "pig crop estimate," in which the Postmaster General co-operates by distributing cards through rural carriers to representative farmers. Several hundred thousand of these cards are returned and from the information thus secured, the bureau is enabled to estimate six months ahead of farrowing time the probable pig crop for the year!

More and more livestock work is being done. It is recognized that the stock men have not in the past received their share of the service, but as a result of their own insistence they now get the attention warranted by the importance of their industry. Poultry interests now are clamoring for more data, and an effort is being made to supply useful statistics for this important branch of agriculture.

The dairymen also want more statistics and the capacity of the bureau is being taxed to meet the popular demand from all quarters.

"America," says Kaufman, "seems to have gone mad over statistics. Every b[illegible] a[illegible]d business house wants up-to-the-[illegible]ute figures. Yet the fellow who makes a business of gathering [illegible] data is the subject of much go[illegible] natured banter.

[illegible]or example, it seems to be the ac[illegible] rule for a toast-master who in[illegible]es a speaker of our persuasion, t[illegible] use the stock phrase, 'Liars, damn liars and statisticians.' But as long [illegible]r product is so much in demand, we can overlook such irony," added [illegible] California statistical expert, with [illegible] twinkle in his eyes.

[illegible]ufman has been in the Golden [illegible] for many years. Formerly he was head of the dairy department of North Dakota Agricultural College. [illegible] States Senator Ladd was pro[illegible]r of chemistry at the same insti[illegible] while Kaufman was there. The [illegible] took his degree in agriculture at [illegible] Iow[illegible], in 1892.

[illegible]re than a quarter of a cen[illegible] patient man has been deal[illegible] in facts and figures, but statistics [illegible] but "dry" to him. Con[illegible] of world importance infor[illegible] that might sway governments [illegible] great fortunes. [illegible] romance galore pass across [illegible] d[illegible] in the form of neatly [illegible] of ciphers and [illegible]

[illegible]

seminates so impartially were available only to speculators, grain traders, packers and other special interests. Now they are free to all. But responsibility to the public involves many annoyances.

"Fool" questions are part of his office routine, as are the almost unreasonable demands for service which sometimes tax the statistician's patience. But more than 1000 legitimate requests for special information, each requiring considerable research work, were answered by this one office during the past year.

Yet far from being dismayed by the increasing duties heaped upon him and his helpers, Kaufman literally looks for more trouble. His chief thought seems to be, "How can we better serve the people?"

Feeding Sugar Beets

If beets are reasonably clean and free from dirt it is not necessary to wash them before feeding. A cow should have 20 to 40 pounds of beets per day, depending upon other feeds contained in her ration. An average of 30 pounds of beets per day per cow is a very good amount to feed with the average ration in ordinary use by dairymen.

Beets make a very excellent feed for cows and increase the flow of milk. Sugar beets are not satisfactory except in very small quantities, as they are extremely laxative and often cause digestive disturbances. Sugar beets should not make up more than one-fifth of the total quantity of beets fed. —G. E. GORDON.

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WEBB'S WHITE LEGHORN CHICKS—You will get plenty of eggs if your chicks come from WEBB'S CACKLE FARM. 2500 choice selected hens mated with cockerels from trapnested hens with records of 200 and better. 12 years SANTA CRUZ largest poultry breeder. Prices 15c up to Feb. 1st, 12½c from Feb. 1st to March 15th, and 10c thereafter. A. M. WEBB, 227 Parkway, Santa Cruz, Calif.

BABY CHICKS—White Leghorns, R. I. Reds, Barred Rocks. Over 200 eggs per year—that is record behind our White Leghorn stock. Write for circular and 1924 price list. Booking now for Jan., Feb. delivery. Safe arrival guaranteed. THE J. H. STUBBE POULTRY RANCH AND HATCHERY, P. O. Box 67-C, Palo Alto, Calif.

WHITE LEGHORN BABY CHIX of unusual value, from especially well culled hens mated with full pedigreed males. Prices per 100: January, $16, February, $15, March, $14, April, $12.50, May and June, $12. 100% live, strong chix guaranteed. We are accredited by the Sonoma County Farm Bureau. THE PIONEER HATCHERY, 476 Sixth Street, Petaluma, Calif.

NINE-TENTHS of the time. This system has made the raising of chicks the easiest branch of the poultry industry and is becoming popular at wild fire speed among all wide awake poultrymen. Write for free folder. STEVE'S BROILER RAISING SERVICE, 627 Chronicle Bldg., San Francisco, Calif.

HANSON'S Pedigreed S. C. White Leghorns. Trapnested for 15 years. WORLD'S RECORD Contest Strain. We are offering for sale some valuable individual pedigree cockerels. Send for interesting catalogue. J. A. HANSON, Corvallis, Ore.

PETALUMA HATCHERY—Established 1903 by L. W. Clark. Accredited by Sonoma County Farm Bureau. White Leghorn chicks every day. Guaranteed safe arrival and full count. Free circular. L. W. CLARK, 615 Main St., Petaluma, Calif.

CERTIFIED CHICKS—White Leghorns from guaranteed two year-old hens, mated to Hollywood, Hanson and Tancred males of high trapnested record. Write us for descriptive catalogue. ORLAND HATCHERY, Orland, Glenn Co., Calif.

OAK KNOLL POULTRY RANCH—Husky chix from our pure blood 2 to 4-year-old W. L. hens. Cockerels from Hanson's trapnested 250-egg stock. 15 years experience in breeding and hatching. Prices are reasonable. T. E. BLAKE, Santa Cruz, Calif.

TRAPNESTED WHITE LEGHORNS—Hollywood and O. A. C. stock. We offer 75,000 chicks, 2,000 hatching eggs, 3000 pullets, 2000 pedigree cockerels. Booking orders now. Send for price list. INWOOD LEGHORN FARM, Corvallis, Ore.

PEDIGREED S. C. W. Leghorn Baby Chicks and hatching eggs. Our large selected hens are matched to Hanson's high pedigreed cockerels. Prices reasonable. DINIC HATCHERY, Petaluma, Calif.

BABY CHICKS. Thoroughbred White Leghorns, from heavy laying strains. $10 per 100. No dead or weak ones charged for. SCHELLVILLE HATCHERY, Schellville, Sonoma County, Calif.

BABY CHICKS, all kinds, hatching each Monday. Ducklings, turkeys, hatching eggs. Pullets, pigeons, rabbits. FANCIERS' EXCHANGE, 640 S. Main St., Los Angeles.

CLOVER CUTTERS, $8.50 to $45. Write for circulars. ARNOTT & CO., 114 S. Los Angeles St., Los Angeles.

FREE BOOK, "Chickens from Shell to Market," on application to COULSON COMPANY, Petaluma, Calif.

SPECIAL prices on guarntd day-old pullets. Fall and winter delivery. Write for particulars. EUREKA HATCHERY, Petaluma, Calif.

CHICKEN PLANT equipped for 3500 head, for lease. Address DR. F. KERR, Garden Grove, Orange County, Calif.

POULTRY

ACCREDITED BABY CHIX—White Leghorns and R. I. Reds hatching every Sunday. Also all the standard varieties in our "quality" chix, the kind that live and thrive because of strong parentage. Careful hatching and packing for shipment. Our "quality" White Leghorns are from flocks averaging from 201 to 250 eggs per hen per year actual records. We stand behind our "quality" chix as well as the "Accredited." Remember, we guarantee full count of live chix at destination when we ship via express. Early orders get the preferred dates. Act quickly. ARTESIA HATCHERY (Electric), Artesia, Calif.

DRYDEN POULTRY BREEDING FARM, Concord, Cal. White Leghorn and Barred Plymouth Rock eggs for hatching and day-old chicks from stock that has been bred 15 years for egg production. Our pen of Leghorns won first in November at the Petaluma egg laying contest. Write for prices and information. Also some males of same strain for sale.

ORDER NOW—White Leghorn baby chicks from purebred stock, Ferris strain. Only pedigreed cockerels of 224 to 301 egg records used. Also R. I. Reds, dark, large, heavy layers make profitable broilers. Write for attractive prices on large or small orders. Satisfaction guaranteed. Anderson's Hatchery and Poultry Farm, Modesto, Calif.

STRONG BABY CHICKS—For the farmer who must get his profits from actual production of eggs and market fowl, all from stock rigidly selected through many generations, from cocks with dam's records of 200 to 275 eggs per annum. February prices, $17 per 100 for White Leghorns; $27 per 100 for White Plymouth Rocks. PURE BREED HATCHERY, San Mateo, Cal.

PEERLESS WHITE WYANDOTTES, ATKINSON PEERLESS ANCONAS—I am originator and breeder of "Peerless" strain birds for 20 years. Leading prize winners at largest poultry shows. Official egg records, 252 to 261 eggs. Mated pens, cockerels, hatching eggs. Illustrated catalog free. J. W. ATKINSON, Box 10, 130 So. Willard Ave., San Jose, Calif.

CERTIFIED BABY CHICKS from inspected flocks. All hens have undergone rigid inspection, mated with males having authentic trapnest records of at least 200 eggs on the side of both parents. Certified by Alameda County Poultry Breeders Assn. Now booking orders for fall and spring delivery. Utility prices. Chanticleer Elec. Hatchery, Inc., Hayward, Cal.

SUPERIOR STRAIN S. C. WHITE LEGHORNS exclusively. We have published a booklet describing our superb strain of White Leghorns, our methods of housing and brooding, feeding formulae and other interesting data, which we will be pleased to mail free upon request. SUPERIOR EGG FARM, R. R. 1, Box 153, Anaheim, Calif.

WHY DELAY? Place your order for 1924 chicks with the White Hatchery, the hatchery with a reputation for good chicks. Safe arrival, full count guaranteed. Member of Accredited Hatcheries, Sonoma County "A" and "AA" stock. Price right. Send for catalog. WHITE HATCHERY, Petaluma, Calif.

W. LEGHORN CHICKS from Tancred, Ferris and Puritas Springs strains, with pedigrees up to 313. Our stock has been bred for years for vigor and high flock average egg production. Be sure and get our attractive prices and circular. WEIS FARMS, Petaluma, Calif.

PUREBRED STOCK—Chicks, pullets, cockerels, foundation stock, for sale. White and Brown Leghorns, Buff, Black and White Minorcas, White and Barred Rocks, Rhode Island Reds and Anconas. Free booklet. GUY L. WATKINS, Santa Cruz, Calif.

SANTA CRUZ COUNTY FARM BUREAU certified chicks from proven, inspected flocks. Send for list of accredited hatcheries. ACCREDITED HATCHERIES, 106 FRONT ST., SANTA CRUZ, CALIF.

HIGH-GRADE CHICKS from selected Hoganized stock at reasonable prices. White, Brown, Buff Leghorns, Rhode Island Reds, Barred Rocks, Anconas and Black Minorcas. Union District Hatchery, Los Gatos, Calif.

TRAPNESTED REDS. Bred to lay; exhibition quality breeding stock from 305-egg male. Hatching eggs, baby chicks. Circular free. T. S. CALDWELL, 335M West Broadway, Glendale, Calif.

BUFF LEGHORNS—Winners at any show. Cockerels for sale. Eggs in incubator lots, $1.50 to $5 per setting. W. L. HARTHOLOMEW, Chino, Calif.

BABY CHICKS—Send for price list. SANTA CLARA POULTRY YARDS, Breeders and Hatchers, Oxnard, Calif.

TURKEYS, DUCKS AND GEESE

WE ARE BREEDERS of French, Mexican and American Wild Blooded Turkeys, imported stock. Eggs from the different varieties in season. Book your orders now, as each year we are sold out early. JERSEY STOCK FARM, 11534 San Fernando Blvd., Route 3, Box 1336, Burbank, Calif.

BLOOD WILL TELL. Let a wild blooded tom head your flock and see increase of vitality. Where no inbred birds prevail in 10 years' raising of turkeys. JENKINS, the Veteran Breeder American and Mexican Wild Blooded Toms and Hens, Route 3, Box 1175, Burbank, Calif.

CASA DE ROSAS TURKEY RANCH, Carmel-by-the-Sea, Cal. Engage your GOLDBANK BABY TURKS now. Special reduction chicken sale, prize stock, Creamton Brown Leghorns, pens, chicks, eggs. Also Toulouse geese and Carneau pigeons.

QUACKLESS DUCKS. Eggs. Breeders. Free circular. CALDWELL BROS., Glendale, Cal.

RABBITS AND PIGEONS

PEERLESS rabbit hutches, convenient, sanitary, fully equipped, prices low, freight prepaid. J. K. DOLAN, 1836 E. 25th st., Oakland.

LIVESTOCK—Sheep, Goats

PUREBRED TOGGENBURGS from recently imported stock. Heavy milkers. Raised under ideal conditions. Sure to please. CANYON GOAT RANCH, Redlands, Calif.

Treating Sick Turkeys

MRS. JOHN VINZANT asks how to treat turkeys for roup or swelled head and wants to know the cause of this ailment.

It is likely that your house is draughty or poorly ventilated. It may be that the birds are being crowded, and that general conditions are not satisfactory.

See that your turkeys have plenty of room, lots of air—but no direct draft—that the house is kept clean and dry, with plenty of light; then, if your method of feeding and management is right, you should have no further trouble.

For immediate treatment, administer epsom salts dissolved in water, using one pound salts to six quarts water for each twenty birds. Give this solution each afternoon and allow the birds no other water until the solution is consumed.

Isolate the affected birds, pressing the matter out of their nostrils and cleaning out cleft in roof of mouth with cotton. Inject pure tincture of iodine into each nostril and cleft in roof of mouth. Repeat daily until cured.

During treatment put potassium permanganate in all drinking water, using only enough to give the water a wine color.

The following tonic should be fed each morning, using one ounce of medicine to five pounds of mash.

One pound pulverized gentian; one-quarter pound ginger; one-quarter pound saltpeter; one-half pound iron sulphate; one-quarter pound nux vomica.—W. J. DRYDEN.

MAKE $100 A DAY—BE AN AUCTIONEER

You can if you know what to say and how to say it. 4 weeks' term opens Feb. 18 at Los Angeles, Rosslyn Hotel Hdqtrs. MISSOURI AUCTION SCHOOL. (18 years largest in the world) 818 Walnut St. KANSAS CITY, MO.

The California White Leghorn Breeding Farms

SUPERIOR ENGLISH LEGHORNS—INTERNATIONALL KNOWN

THE WORLD'S BEST

Write for mating list on pedigreed chicks and hatching eggs. All [illegible] sold for January and February. One half our output for March and April sold. Hatching eggs now for sale from recent importation—288 to 313 eggs records.

ECKMAN & MILLIGAN, Lankershim, Cal.

NURSERY TREES AND PLANTS

FIGS—Planters of large or small acreage of figs will find it to their advantage and profit to get in touch with us. We have 200,000 fig trees grown by us, near San Fernando—Kadota, Black Mission, Black San Pedro and Brunswick. Land is to be subdivided this year and we must move them. KELSEY-OXFORD NURSERIES, Valley Blvd., 2 miles west of El Monte, Calif. Phones Alhambra, 91938, Res. 763R1.

CONCORD GRAPEVINES—We can supply the world with Eastern and California Concord (Pierce-Isabella) vines of fine quality, grown by us at San Fernando. These are the money makers for localities adapted to them. KELSEY-OXFORD NURSERIES, Valley Blvd., 2 miles west of El Monte, Calif. Phones Alhambra 91933, Res. 763R1.

CHOICE AND RARE BERRY PLANTS—Red Raspberries, Black Raspberries, Purple Raspberries, Blackberries, Cory Thornless, Macatawas, Mammoth, Himalaya, Phenomenal and Red Logan, Dewberries, Currants, Gooseberries. Ten varieties of Strawberries. Wholesale and retail. Send for free catalog. STANFORD BERRY PLANT NURSERY, Box 726, Palo Alto, Calif.

BEFORE YOU BUY! Get our prices on fruit trees, grapevines, both domestic rooted and grafted on resistant root, berry plants, etc. We will save you money in addition to supplying you with fully guaranteed stock. Write us list of your wants and request price list. Wholesale and retail. J. F. MILLER & SONS, Healdsburg, Calif.

NURSERY STOCK—Excellent Black Bartlett pear trees at cut prices, while they last. French prunes, peaches, cots, plums, etc. Lowered prices on all stock. Secure your wants while they last. Reliable stock and stock of quality. Send for planters list. 34 years in business. CARLTON NURSERY CO., Carlton, Oregon.

EXCLUSIVE growers of Stuart Prune trees, also California Black Walnuts and Kadota Fig trees and other fruit and nut trees. Wholesale and retail. Write for prices. RIPON NURSERY CO., P. O. Box 153, French Camp, Calif.

KADOTA Figs—Rooted trees and cuttings, our stock direct from the original Tait orchard, this is the early bearing and heavy tonnage variety. RADIUS & POMEROY, Oakdale, Calif.

TREES, PLANTS, SHRUBS, guaranteed, direct from grower. Lowest prices. New, Dr. Worcester hardy peach and Ohio beauty apple. Planting book FREE. WOODLAWN NURSERIES, 957 Garson Ave., Rochester, N. Y.

BLACK MONUKKA GRAPES—We have several thousand Black Monukka grapevines of splendid quality ready for delivery. KELSEY-OXFORD NURSERIES, Valley Blvd., 2 miles west of El Monte, Calif.

FRUIT AND ORNAMENTAL TREES—Most complete line offered Southwest. Buy direct from growers. Catalog free. Express paid. Consolidated Nurseries, Houston, Tex.

FILBERTS, CHESTNUTS, PECANS, WALNUTS our specialty. Catalog. C. E. Parsons, Prop. FELIX GILLET NURSERY, Nevada City, Calif.

Strawberry and Blackberry Plants

BERRY PLANTS—We invite you to visit our thirty-acre berry field and select plants for the coming spring. You will see our nineteen acres of Advance Blackberries which are ripe when other varieties are still in bloom. Also Loganberries, dewberries, red and blackcap raspberries. Strawberries: Klondyke, Carolina and Progressive Everbearing. Write for catalog. Preston & Knott, Buena Park, Cal.

EVERBEARING Strawberry Plants. Champion. Best new everbearer, $2.00 hundred, $16 thousand. Progressive best old variety, $1.25 hundred, $11 thousand, prepaid, guaranteed large strong plants. BOULDER STRAWBERRY GARDENS, Boulder, Colo. Route 2.

FOR SALE—Oregon Plum and Brandywine strawberry plants, $1.00 per hundred or $7.50 per thousand. W. KELTHOFF, Occidental, Sonoma Co., Calif.

MARSHALL Strawberry Plants, $7 per 1000, $1 per 100. J. F. Ralston, Anderson, Calif.

HOUSEHOLD SUPPLIES

GET A WOOL BLANKET—Guaranteed 100% wool. Pacific Coast manufacture, California and Oregon wools. Blankets are plaids, colors blue and pink. Double size 66x80, price postpaid, $10 pair. Andrew H. McLane, wool brokers, Red Bluff, California. Satisfaction guaranteed or money refunded.

FARM LAND FOR SALE

ATTENTION, HOME SEEKERS!

We are now offering rich, deep, black loam with sufficient gravity and pump water to insure against crop failure.

Suitable for trees, vines, grains and alfalfa. $150 per acre. Terms 10% cash and ten (10) years, or 5% cash, balance on 20-year amortization plan. A. W. SCHULTZ, 1241 Broadway, Fresno, Calif.

OUR BACK-TO-LAND PLAN—We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land, deep, rich, tried soil, complete irrigation with cheap water, thorough drainage, rail, water and highway transportation. Write owners, SUTTER BASIN COMPANY, California Fruit Bldg., Sacramento, Calif.

560 ACRES LEVEL VALLEY LAND, eighteen miles from Sacramento. Fine for fruit, grapes, nuts, olives and alfalfa, with water for irrigation. Four on foot. No surface hardpan. $55 per acre. $15,000 down, balance time, at 6%. ELLEN B. OWEN, Resident owner, Elk Grove, Cal.

POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, California.

REAL ESTATE FOR EXCHANGE

MISSION FARM for exchange, 1[illegible] acres, extra fine land, lots of new improvements, well located. Want California farm suitable for dairying and general farming. OSCAR EGGERS, Burlington Jct., Missouri.

SOUTHERN OREGON dairy ranch to trade for California income property. Value $16,000. BOX 373, Lakeview, Oregon.

FARMS WANTED

CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

BULBS AND SEEDS

ALFALFA SEED—Original Hairy Peruvian. When writing state amount wanted. LEO TURNER, Yuma, Arizona. 23 years on Yuma Valley Farms.

GLADIOLUS, 20 large, mixed $1, 40 blooming size, $1; 25 Primulinus, $1. Ask for price list. C. O. JURGENSEN, Salinas, Calif.

AUTOS AND AUTO SUPPLIES

FORD OWNERS, BE COMFORTABLE. Buy a limousette and make a sedan or coupe of your Ford. Touring model, $12.50, roadster, $7.50. H. V. CARTER CO., 38 Beale St., San Francisco.

HELP WANTED—Instruction

EARN $110 to $250 monthly, expenses paid as Railway Traffic Inspector. Position guaranteed after completion of 3 months' home study course or money refunded. Excellent opportunities. Write for Free Booklet, [illegible] Stand. Business Training Inst., Buffalo, N. Y.

TOBACCO FOR SALE

CIGARS—Direct from factory. [illegible] one big best bet, $2.50 for 50 Little [illegible] Sports, 4½ inch, $3 for 50. Cigar clippings, 65c lb. FRANK MILLER, 1308 West [illegible] St., Dept. O, Los Angeles, Cal.

LEAF TOBACCO—chewing five pounds, $1.75; ten, $3.00; smoking five pounds, $1.25; ten, $2. pipe and recipe free. Pay when received. CO-OPERATIVE FARMERS, Paducah, Ky.

FARM TRACTORS, MACHINERY

NEW and rebuilt implements at special prices. Call and see them. ARNOTT & CO., 114 S. Los Angeles St., Los Angeles.

BOOKS FOR FARMERS

AUTOMOBILE owners, garagemen, mechanics, send for free copy America's popular motor magazine. Contains helpful, money-saving articles on repairing, overhauling, ignition, carburetors, batteries, etc. Automobile Digest, [illegible] Butler Bldg., Cincinnati.

BOOKS [illegible] farmers [illegible] bound books [illegible] $4 [illegible] Los Angeles, Calif.

Real Boys' Farm Develops Character

(Continued from Page 2)

Lyons made 134 pounds of butter in one month, giving 12,000 pounds of milk, containing 522 pounds of butter in 142 days.

Although the fair season was many weeks away, a number of interested boys already were at work conditioning the animals destined to enter show rings. The lads take an intense interest in dairy work and become greatly attached to the animals, for the sake of which they do not hesitate to sacrifice their own personal comfort.

BOYS HOLD GOOD POSITIONS

One of the boys, Reni Bruileau, showed such great ability and devotion that he was retained for the position of head herdsman. Over 100 boys have been trained in the Republic dairy and are now holding farm positions. Six are foreemen of purebred dairies.

In addition to agriculture, the boys are taught a number of other manual arts, such as printing and weaving, machine carpenter and electric work. Regular classes are held in such subjects as will assist in mastering the farm or shop work, the days being equally divided between work and study. The Republic is really a manual arts high school, the entering age limit being 14 to 18 years. Only those who are normal and sound in mind and body are admitted.

In addition to the class-room farm buildings and residence cottages, there is a dining hall, laundry, printery, hospital, clubhouse, government building and gymnasium. A professional nurse has charge of the hospital, which was empty at the time of my visit. Non-sectarian religious services are held each Sunday in the clubhouse. The students publish a monthly magazine and do job work. Parties, entertainments, games and picnics form a very prominent and enjoyable part of life at the Junior Republic. Adjoining the gymnasium is a large swimming pool. Students are required to take daily shower baths.

Three dozen persons are employed to instruct and care for the students, who number 75 during the school year and 50 during vacation. Part of the teachers' salaries are paid with government money furnished under the Smith-Hughes Act.

A unique and interesting feature of the Republic is the system of government which is entirely in the hands of the students. Elections are held every four months, the boys filling all the offices of a regular city government. Violators of school and civil laws are tried before a duly elected judge, who has a student clerk and peace officers. Punishment consists in doing unusually hard or disagreeable work, which is dreaded because of the humiliation which the sentence carries. Rarely do the officers of the institution find it necessary to interfere with the workings of the Republic government.

The cost of maintaining the Republic averages about $70 per month for each student. Parents pay as much of this as they are able, the balance being made up by public spirited individuals and societies. Small sums are received sometimes from county courts whose wards become citizens of the Republic.

"The value of the work to the community," explained Mr. Messer, "consists in changing boys who are liabilities into assets. It is difficult to overestimate the worth of this operation in dollars and cents, or in any other way. Single criminals have cost the country as much as our entire institution, which has turned out hundreds of useful, self-supporting citizens.

"We receive more calls for farm workers than we are able to supply. Boys earn $25 a month and board in the country, while mechanical workers sometimes start at $18 a week."

After seeing the splendid work the Junior Republic is doing, visitors invariably think of a number of boys who would be benefited greatly by spending a year or two working and playing, learning and developing at the big farm home and school. There is a long and constantly lengthening waiting list.

"Two things which the public generally does not understand," Mr. Messer pointed out, "are that additional contributions would make it possible greatly to enlarge the population of the Republic and that one of the chief supporters of the institution, Mrs. Merle Smith of New York, feels that California people should relieve her of the necessity of making further contributions. Mrs. Smith is willing and able to continue her donations, if it is necessary, but feels that her gifts should go to worthy enterprises nearer home."

Mrs. Eldridge Fowler of Pasadena is another prominent patron of the Republic. She maintains a beautiful country home adjoining the Republic farm. Here many distinguished visitors who come to investigate the Republic are entertained. Educators and social workers unite in giving high praise to the methods of this famous school.

Guineas Good Meat

HAVE you ever eaten roast or fried guinea fowl? If not, you've missed a treat. A Tulare County fruit grower keeps nearly a hundred of these interesting birds. He hatches guinea eggs under hens every year, with very little trouble.

"There are just two critical periods in the lives of the youngsters," he points out—"one just after they are hatched and another when they commence to feather. Like turkey poults, they must be protected from dampness and chill at these times."

Guineas are a bit noisy, but are good guardians of other fowls for this reason. At the approach of a hawk or coyote, they set up a terrific squawking. They have been called "the policemen of the barnyard."

The young ones, scuttling about the weeds or undergrowth, look for all the world like quail. The mature birds fly considerably, but do not leave the home place. They often soar over the barn or alight on the roof tree. They are attractive to have about a farm.

On this particular ranch, the guineas run with the chickens and mostly take care of themselves. They furnish a lot of delicious meat, which cuts the cost of living and gives the family a bit of "game" when more ordinary dishes fail to tempt the appetite. The flesh of the guinea has a slight gamey flavor, but by most persons would be mistaken for extra good chicken, or even rabbit.—A. J. M.

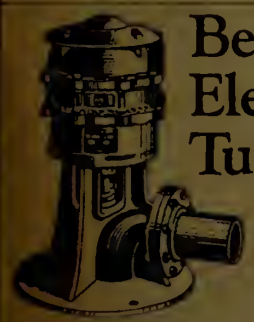
Poultry Feeding Tests

G. E. GORDON, assistant Los Angeles County farm adviser, calls attention to the fact that wrong conclusions might be drawn from a superficial inspection of the report of poultry feeding tests conducted during the past year at the Pomona Farm Bureau Egg Laying Contest.

"The difference," he says, "in the number of eggs laid by Pen No. 1 and Pen No. 8 was due, undoubtedly, to the fact that no green feed was given the latter rather than the difference in the form of protein the No. 1 birds were fed dried skim milk, while the others received meat scrap.

"It is extremely difficult to draw correct conclusions from this report," Gordon points out, "without taking into consideration all the various factors bearing on the mortality production costs and other conditions affecting the experiment.

A copy of the complete report can be obtained by applying to the Farm Advisor, Hall of Records, Los Angeles.



Bean Electric Turbine

Sizes: 6, 7, 8, 10, 12 and 15 inches

A big new improvement in turbine pumps. Motor and pump head built into a single unit. Fewer bearings and less parts subject to wear means low first cost and low cost of upkeep.

No lubrication troubles because there are no under-surface bearings to lubricate. No trouble from sand or grit. Maximum supply of water at minimum expense. In 6-inch size and up for domestic wells; larger sizes up to 15-inch.

Send the coupon.

BEAN SPRAY PUMP CO.
[illegible] W. Julian St., SAN JOSE, CAL.

BEAN SPRAY PUMP CO.
[illegible] W. Julian St., San Jose, Cal.
Please [illegible] new pump catalog with information on the Bean Electric Turbine
Name
Address

A penny a day per cow invested in KOW-KARE works wonders"

A poor milker costs just as much to house, feed and care for as a good producer. For this reason just a slight increase in the milk yield makes a big difference in the *net* profit. Dairy experts say an increase of 10% in the milk yield will *double* the profit.

How important it is, then to get from your cows every pint of milk of which they are capable.

The chief cause—almost the only cause—of poor milkers is the condition of their health. Particularly the health of the milk-making organs.

Kow-Kare, the famous cow medicine and conditioner, acts directly on the milk-producing organs. It tones up the genital and digestive functions, makes them sturdy and active. More milk and better health *must* result. Feed Kow-Kare one week out of each month (a tablespoonful twice a day) and the result will surprise you.

For the treatment of Barrenness, Abortion, Retained Afterbirth, Scours, Bunches, Milk Fever, Lost Appetite, etc., Kow-Kare has a well-earned reputation. No dairy barn should be without it. For twenty-five years it has been the chief reliance of thousands of dairymen, when cows are sick.

Feed dealers, general stores and druggists sell Kow-Kare; $1.25 and 65c sizes. Write for our free book, "The Home Cow Doctor." It is full of information valuable to cow owners.

DAIRY ASSOCIATION CO., Inc. Lyndonville, Vt.

Makers of Grange Garget Remedy, Bag Balm, American Horse Tonic and Horse Comfort

Unprofitable Cows are often sick without appearing so!

Watch the milk pail closely. The rise and fall of the yield indicates the health condition of the cow. A cow may look well, yet be suffering from sluggish digestive or genital organs. Kow-Kare acts directly on these organs. Its use restores normal milk yield and enables the cow to throw off disease.

GERMAIN SEED CO.,
LOS ANGELES, CALIFORNIA
Wholesale Distributors of Kow-Kare and Bag Balm for California

1000 EGGS In EVERY HEN

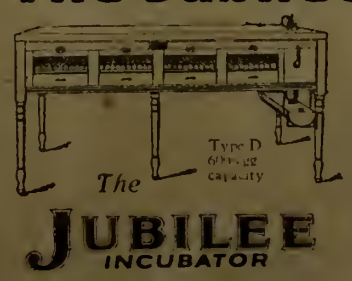
If You Keep Chickens
CUT THIS OUT

"The great trouble with the poultry business has always been that the laying life of a hen was too short," says Henry Trafford, International Poultry Expert and Breeder, for nearly eighteen years Editor of Poultry Success.

The average pullet lays 150 eggs. If kept the second year, she may lay 100 more. Then she goes to market. Yet, it has been scientifically established that every pullet is born or hatched with over one thousand minute egg germs in her system and will lay them on a highly profitable basis over a period of four to six years' time if given proper care.

How to work to get 1000 eggs from every hen; how to get pullets laying early; how to make the old hens lay like pullets; how to keep up heavy egg production all through cold winter months when eggs are highest; triple egg production; make slacker hens hustle. These and many other money making poultry secrets are contained in Mr. Trafford's "1000 EGG HEN" system of poultry raising, one copy of which will be sent absolutely free to any reader of this paper who keeps six hens or more. Eggs should go to a dollar or more a dozen this winter. This means big profit to the poultry keeper who gets the eggs. Mr. Trafford tells how. If you keep chickens and want them to make money for you, cut out this ad and send it with your name and address to Henry Trafford, Suite 10 IF, Herald Bldg., Binghamton, N. Y. and a free copy of "The 1000 EGG HEN" will be sent by return mail.

The "Jubilee" for Results



Profits from baby chicks depend upon a high percentage of hatch and a high quality of chick. A Jubilee gives you both.

Jubilee's Original Hot Water System is still the best. Jubilee's method of Moisture Control insures exactly the right amount of moisture at all times. Jubilee's System of Ventilation provides plenty of oxygen for the eggs and oxygen is life to baby chicks in the hatching!

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The new extra-size oil tank requires but one refilling during the entire period of the hatch. New linoleum top prevents scratching and saves heat. New type snaps hold the doors extra tight. Many other new improvements. Four sizes to meet all requirements.

Sign and send the coupon for new Bulletin which describes the entire Jubilee line and shows you how to have big hatches of baby chicks. Also ask about Jubilee Hot Water Brooders and Electric Incubators.

THE JUBILEE CO.
Box 9-B, Sunnyvale Ave., Sunnyvale, Cal.

I would like a copy of the new Jubilee Bulletin.

Name
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9B Sunnyvale Ave. Sunnyvale, California

Buy Bergtholdt *Guaranteed Trees*

"For any tree that may prove untrue to name, we agree to refund to you a sum of money equal to ten times the price you paid for the tree."—*extract from guarantee printed in our catalog.*

Don't gamble this year with "cheap" trees. They're too expensive in the end. Pay the few pennies extra for profit insurance.

Bergtholdt trees—the product of 30 years' experience—are propogated from proved parentage only. Buds and scions are furnished and certified by the California Nurserymen's Selection Association.

Write for your copy of our new catalog. Get all the facts. Don't take chances.

ROOTS are the key to the worth of your tree—the success of your orchard. Our nurseries are located on soil that grows hardy trees with well branched, fibrous roots; immune from all root diseases.

The Silva-Bergtholdt Co.
Newcastle, California

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The JOHNSON TRACKPULL *for* FORDSON TRACTORS

The Johnson Track added to the Fordson converts it into a highly efficient 2-ton "muley" type tractor of 14 h. p. drawbar efficiency. Fully guaranteed. Write for Special Folder, also giving name of nearest Fordson dealer

Dixon, Griswold & Co.
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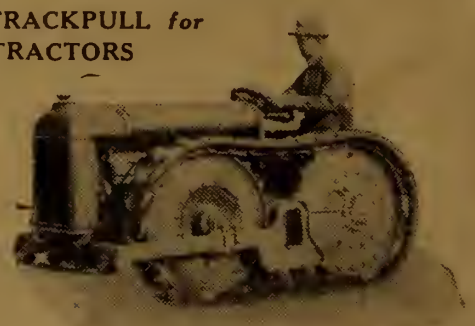
140-44 N. Los Angeles St., Los Angeles, Calif.



Clutch Controlled. Turns Short.

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98 Pine Street, New York
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Box 25

HAND OR HORSE POWER
Stump Puller

Land clearing an easy, one-man job—big stumps pulled clean with this wonderful machine.

Write for catalogs and free book on land clearing.

Our Big *Plant Book*

Is just off the press and we are anxious to send you a FREE copy. It contains 64 pages and describes 200 varieties of fruit trees and vines, and over 1000 different kinds of ornamental plants.

Send for your copy today.

California Nursery Co.
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USED PIPE *and* CASING

for Irrigation Purposes

All sizes in stock

Standard and Screw Casing

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New Lauson Tractor
MODEL 15-30
$1600 f. o. b. Minden, Nevada.

C. O. D. GARAGE CO.
Minden, Nevada

Fruit Tree and Berry Catalog Being Distributed Free

Copy Will Be Mailed to Any Reader of This Publication on Request.

This is the season of the year when the matter of setting out Fruit Trees and Berry Plants should receive attention. Of especial interest at this time, therefore, is the announcement that one of the oldest nurseries in California, established for more than 30 years, is issuing a catalog covering Fruit Trees, Berry Plants, Rhubarb Seeds, etc., which contains a fund of valuable information and which should be in the hands of every one contemplating setting out trees or plants.

Arrangements have been made by which any reader of this publication can obtain a copy of this catalog absolutely free, and without the slightest obligation, by simply making request of the Wagner Nurseries, "Originators of Giant Winter and Panama Rhubarb," Dept. O, 2491 East Colorado St., Pasadena, Calif. Send for your copy today, as the edition is limited.

Poultry Advertising

(Continued from Page 3)

but popular as well. Schaefer secured a mating of the Royal Russian Orloff Turkens and after breeding improvements he introduced them on the Coast. By proper advertising he has worked up an independent trade which has been exceptionaly profitable.

There may be many other breeders who have stock which can come up to the standard of the successful ones listed, but which has not been brought to the attention of the public in the form of advertising.

SANTA CRUZ EXPERIENCE

Santa Cruz has come to the front as a poultry center by the egg-laying contest, which also serves as a medium of advertising for the breeder. The Breeders' Association of Santa Cruz, although just started, is serving as a big advertising lever for the breeders of that section.

In Petaluma, the egg show newspaper advertising and the work of the Chamber of Commerce are doing much to build up that section as a commercial egg center. So far, however, little has been done to promote breeding work except the cockerel auction sales, the accredited hatchery idea and the egg-laying contests.

Every shipment of eggs or poultry should contain in large letters the name of the poultry farm from which the shipment is made. It would surprise one to know the number of inquiries made by those who have been favorably impressed with a shipment observed in transit.

COLONIES USE PUBLICITY

The Charles Weeks poultry colonies, the Petaluma poultry district, the Rio Linda project and other poultry projects owe their success largely to advertising. While it is true that no matter how much advertising is done in the poultry game, unless quality is back of the advertising, success cannot be obtained for long, it is also true that if the quality is not made known, then the first step toward success cannot be taken.

The poultrymen would do well to follow the example of their hens, who cackle to advertise the fact that they have laid their eggs. The old, reliable hen lets the world know that she has done her share and it is up to the producer to inform the public that he has her products on the market. Why sit back quietly when there is really something to crow about?

Imitates Sun Maid

THAT European packers are taking full advantage of the publicity and distribution of the Sun Maid Raisin Growers is indicated by a communication from J. F. Grass, former Merced County farm adviser, now in Europe.

Grass recently forwarded to J. L. Quail, present Merced County Agent, a replica of the little 5-cent Sun Maid package—an exact imitation as to size and color, but adorned with the trademarked photograph of a beautiful Senorita instead of our famous "Sun Maid" girl.

Although part of the lettering is in Spanish, the word "Raisins" and other lettering appears in English, which observers brand as a deliberate attempt to mislead the European consumer. The quality of the contents is said to have been very poor, which some local officials regard as a serious reflection upon the Sun Maid good name.

Grass added that he had found plenty of first quality American dried fruit in European consuming centers and that all the California brands were to be seen.

The New BULLETINS

AMONG new bulletins and circulars issued by the United States Department of Agriculture the following are deserving of special mention. They may be obtained free on application to the Division of Publications, Department of Agriculture, Washington, D. C. Order by number:

	Number
Beef Cattle Barns	1350
Diseases of Adult Bees	247
Effect of Feeding Green Alfalfa and Green Corn on Flavor and Odor of Milk	1190
Dahlias for the Home	1370

The following may be obtained from the University of California, Berkeley:

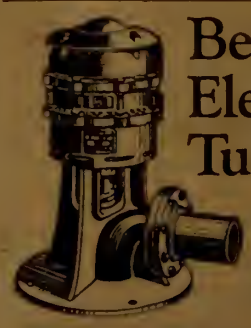
Analyzing the Citrus Orchard by Means of Simple Tree Records	266
Avocado Culture in California	363
Bacterial Decomposition of Olives During Pickling	365

Big Seed Catalog Ready for Growers

Morris & Snow Seed Company of Los Angeles Issues Big Annual Book for Free Distribution

The Morris & Snow Seed Company of Los Angeles, one of the oldest and largest seed houses in California, has just issued its 1924 catalog. The new and enlarged book contains a vast amount of valuable information to orchardists, ranchers, gardeners and growers generally. The big book is really a manual because of the "Hints on Growing" which presents valuable information on spraying, fumigating, fertilizing and use of insecticides. It tells how and when to sow seeds and set out plants for best results, and explains the correct use of tools and implements. Notes on marketing, telling how, when and where to buy and sell to advantage are another feature of the 1924 volume.

The big catalog contains 64 pages and has more than 150 illustrations. It is said to be the most complete book of its kind ever issued in the Southwest. The company announces that a copy of the book will be sent free to readers of this paper who write for it. The address of the Morris & Snow Seed Company is O-439 South Main Street, Los Angeles, Calif.



Bean Electric Turbine

Sizes: 6, 7, 8, 10, 12 and 15 inches

A big new improvement in turbine pumps. Motor and pump head built into a single unit. Fewer bearings and less parts subject to wear means low first cost and low cost of upkeep.

No lubrication troubles because there are no under-surface bearings to lubricate. No trouble from sand or grit. Maximum supply of water at minimum expense. In 6-inch size and up for domestic wells; larger sizes up to 15-inch.

Send the coupon.

BEAN SPRAY PUMP CO.
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BEAN SPRAY PUMP CO.
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Please send me your new pump catalog with information on the Bean Electric Turbine.
Name _____
Address _____

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Earn cash profits in advance taking orders for our fine tailoring from friends and neighbors $65 to $95 a week, all or spare time. We deliver orders and collect.

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Our classy outfit pulls orders quick, on sight. Clever, new, different from all others. Get free booklet telling how to make Big Money taking orders. You'll be delighted with our outfit and our latest low prices. Free cloth samples 2" x 2½", beautiful fashion styles, all in classy Buckram covers with snap fastener, a knockout for Making Big Money. Limited supply, write us at once.

FREE

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Dept. 159 W Harrison St. Chicago

Showers Makes Things Hum in Madera County

WITH cream checks averaging $900 a month, hog sales $350 and sales of calves $280, the income of Carleton Farms is paying the operating expenses of the ranch, two years from the time the 800-acre tract was acquired as raw land.

And it is fortunate this is the case, permits Professor F. F. Showers, rather grimly. This is why: Last October, owing to the sudden illness of E. G. Harrows of Los Angeles, the wealthy benefactor who gave the land to his Minnesota alma mater, all outside financial aid ceased and the ranch was thrown upon its own resources.

This might not have been so serious if it had been expected, but Professor Showers, who manages the farm for the educational institution, had been promised $30,000 for development and had made all his plans accordingly. That the unforeseen circumstances did not amount to a catastrophe is indeed a tribute to his foresight, good judgement and energy.

What Showers has accomplished in so short a time is indeed remarkable. In addition to a full complement of modern buildings, completely equipped, Carleton Farms has a fine irrigation system, with three electrically-driven pumping plants, sixty acres of orchard and vineyard, and nearly 100 acres of alfalfa. Barley is raised on the remaining acreage. The dairy herd consists of more than seventy-five Holsteins of the highest-producing blood, and in connection with the dairy, a fine herd of Duroc-Jersey hogs is maintained.

LAUDS SAN JOAQUIN VALLEY

In Professor Showers' estimation, Californians do not appreciate the advantages for dairying they enjoy. In a recent address before the Fresno Rotary Club, he said: "The San Joaquin Valley is the best dairy district in America, and I have visited every State in the Union making a study of dairy conditions. Feed can be raised cheaper and average milk yields are higher. The cost of production of butterfat is lower per pound here, I think, than anywhere else in the United States. We cut our alfalfa seven times. That alone would be considered amazing in the Middle West."

The enthusiastic manager of Carleton Farm points out the opportunities for gaining independence in the great valley. "With twenty acres, thirty hogs and 15 cows any man who is willing to work and who can raise alfalfa and barley should make a living and get ahead," he insists. "There is an immediate income from the cows; the hogs, fed largely on skim milk, soon develop into money, and there is a good demand for veal calves. With land bought at the right price (and there is plenty of it available), an adequate supply of irrigating water and willingness to work, such a man will find it comparatively quick, if not an easy road, to success. I have been trying to sell the people of Merced County in their own district," he [illegible] on the occasion of our recent visit to the ranch, as he departed to make another speaking engagement in a nearby town.

Carleton Farm is located in the Chowchilla tract, about fifteen miles from Chowchilla and the same distance from Madera. The visitor is impressed at once by its apparent newness and at the same time its comfortable appearance. Clumps of handsome Holsteins in the barn lots and pastures are visible from the road.

[illegible] Showers has some of the finest dairy herds in the State. At a [illegible] sale [illegible] average $112, each carrying 50 per cent of the blood of King Segis Pontiac Count, said to have produced more record breaking heifers than any other sire.

A son of the "Count," recently shipped West from the Minnesota farm of the school, is Colonel Abbekirk Pontiac Segis, whose dam was Tidy Abbekirk Princess Gazelle, with a record of 1227 pounds of butter and 27,447 pounds of milk.

Carleton College also owns Major Petertje Ormsby, son of Sir Petertje Ormsby Mercedes, whose dam was Bess Mercedes Korndyke, a $10,000 cow.

By testing and the practice of the most up-to-date dairy methods, Showers is bringing about a steady improvement in production. The fine milking barn undoubtedly has had considerable to do with the ready acclimatization of the herd and the quick and satisfactory results secured under California conditions. The upper portion is arranged with lattice work for ventilation.

The barn is equipped with two rows of iron stanchions, feed being distributed from a cart at the center. The cement floor slopes to drains, into which, by means of a powerful stream of water, all manure and refuse is flushed and thus carried through an eight-inch pipe to a sump beneath a large cement standpipe. More water, entering direct from one of the irrigating pumps through a sand-trap, is let into the sump, the pressure churning the mass so that it is broken up into small particles and in liquid form, may be conveyed through the underground pipes to any desired field or to the orchards.

MACHINERY HANDLES GRAIN

Large quantities of barley are raised, and the most modern, labor-saving equipment has been installed for handling the grain in bulk. Elevated to an upper bin, it is brought down by gravity to a grinder and the ground grain again is taken to the upper floor by means of an elevator, being conducted to the feed car through a chute as needed. Electric power is used.

The excess grain, together with skim milk and pasture, goes into pork—an important side line. Showers believes in the Duroc-Jersey breed and is trying to produce market hogs of the medium size and smooth type now in demand by packers.

Strange to relate, however, both the swine enterprise and the dairy were started over the protest of some of Showers' associates and advisers, who maintained he was entering a fruit country and therefore should go in for horticulture.

Showers compromised by setting out twenty acres of peaches, twenty of apricots and twenty of vines. Gophers and other pests have added to the difficulties encountered in this branch of the farm activities, but most of the young trees now have passed the "dangerous age," and prospects are good for fruit production.

"But," points out the manager "what if I had not started the dairy and hog department and had been sitting back waiting for fruit to come into bearing when our income stopped last fall? Where would we be now? I have never yet met a man who put all his eggs into one basket and made a real success. I am afraid the San Joaquin Valley has a tendency to do this.

"DIVERSIFY," WARNS SHOWERS

"Minnesota as a grain state once faced this problem. Then the wheat yield fell to four bushels per acre and it was impossible to make money. Minnesota now depends to a great extent upon her dairy industry, and for a time in that State, the dairymen were the only farmers who could go to the banks and borrow money.

"Moreover, the average crop yield now is increasing instead of decreasing. I fear if they are not careful, San Joaquin ranchers will soon be doing what Los Angeles County and Santa Cruz County farmers are doing—shipping in large quantities of expensive fertilizer."

And Professor Showers emphasized his statements with vigorous gestures. He is both emphatic and diplomatic—an unusual combination—and punctuates his remarks with shafts of keen wit, which, together with his optimism, have made him much in demand as a speaker at public gatherings.

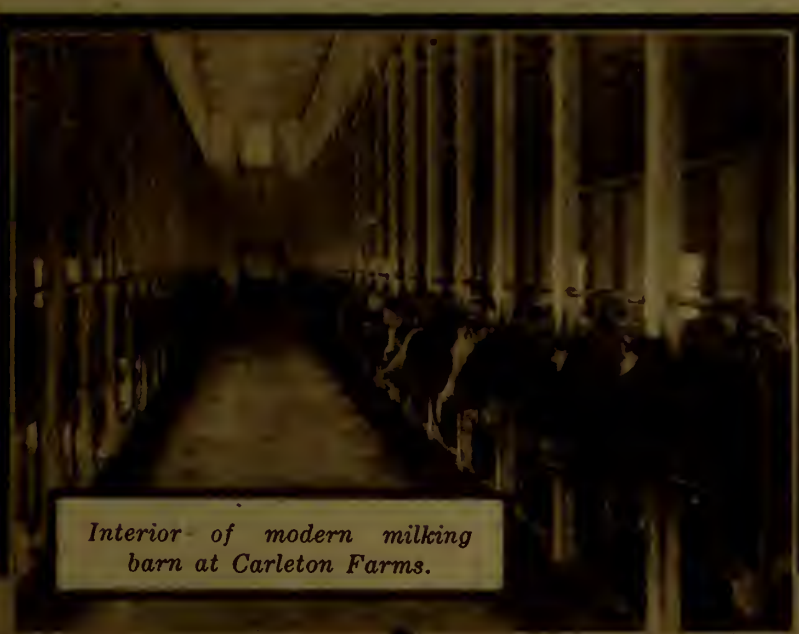
Our prediction for Madera County is—"Showers, and warmer;"

Backs Theory With Experience

WHEN Carleton College (Minnesota) received as an endowment gift, 800 acres of California land, President Cowling of that institution, sent the head of its Animal Husbandry Department to make an inspection and report on possibilities for development.

The visitor saw opportunities that many native sons had overlooked, and returned so enthusiastic that he was commissioned to develop a modern ranch in the newly-acquired property. That was a little over two years ago. Now if there is any one in the San Joaquin Valley who hasn't felt the uplift of Professor Showers' enthusiasm and magnetism that person has missed a real experience.

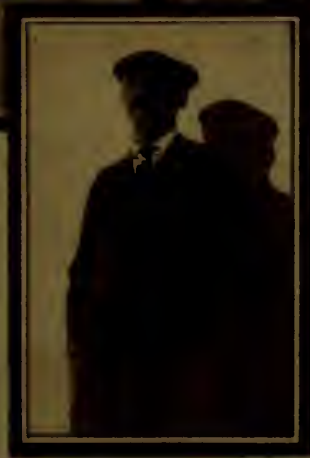
By ALBERT J MASON



Interior of modern milking barn at Carleton Farms.

A dairy day meeting at the ranch, which was attended by several hundred guests.

Main group of buildings, showing machine shed, feed barn and other structures



F. F. Showers, who came, saw and conquered.

Importing Much Wool

IN spite of the tariff on wool, imports during the year ending June 30, 1923, were more than double those of the preceding twelve months, amounting to 525,000,000 pounds, which was double the amount of wool grown in the United States. There was 10 per cent more wool in this country last summer than a year ago. It is reported that spring woolen goods will be 10 to 12 per cent higher than they were last spring.

Prefers Wood Barn Floors

DWIGHT G. FRENCH, a very successful swine breeder of Tulare County, prefers wood floors to concrete in his farrowing house although he has both. Concrete in some ways is more convenient and more easily cleaned, but it is a great deal colder in winter and that is a bad thing for sows with young pigs. Concrete is cooler in summer, but its advantages are not enough to make up for winter's chill, he maintains.—TULARE FARMER.

[Editor's Note—Many stockmen now prefer wood floors laid over concrete.]

SCRUB CAUSES $1000 LOSS

A Kentucky farmer estimates that a scrub boar caused a loss of $1000, that being the difference between the prices received for the progeny of 12 sows bred to the scrub and a purebred sire.

AGRICULTURAL ARIZONA

Arizona is one of the few places in the world where the finer varieties of dates can be grown successfully.

Expert pomologists claim Arizona grapefruit is as sweet as any other. Local boosters say their pomelos are the sweetest.

This sugar cane might have been produced in Cuba or Hawaii, but the picture was taken in Arizona and is evidence of a tropical climate.

In spite of bonanza specialty crops, dairy cows and alfalfa are the standbys of Arizona agriculture, the basis of farm prosperity.

Cotton once more looks good to Arizona farmers, because of present high prices. Maricopa's 1923 farm products were valued at $22,000,000.

ORCHARD and FARM

FEBRUARY 3, 1924

Hard Work and Pigeons Feathered His Nest

Famous Alameda County Squab Ranch Makes Real Money for Fortunate Owner

DO you know that California has one of the largest pigeons farms in the world? It is located at Hayward, and the average "population" of the lofts is more than 15,000 birds. The proprietor, C. R. King, enjoys a weekly cash income from his four-acre plant that would make any dairyman or fruit grower sit up and take notice. —*The Editor.*

By ALBERT J. MASON

UPON viewing the great King pigeon lofts, the beautiful residence, the family automobiles and all the other evidences of prosperity which greet him at California's largest "bird farm," the visitor finds it difficult to believe that just sixteen years ago the owner was struggling to make both ends meet at a small salary in the city.

It is the old but ever-new story of a boyhood hobby which developed into a successful business. King has always loved pigeons, but he got his first insight into their commercial possibilities while reading meters for a Los Angeles public utilities company.

At that time "homers" were the craze, the homing birds being raised for squab production as well as sport. Finding that he had a common interest with the owner of one house which he visited on his round of duties, young King was invited to inspect the back yard loft where a few birds of this breed were confined.

As a result, he decided to invest in two pairs—and this was his start as a fancier. Gradually he increased his holdings, always buying the best blood obtainable, and finally becoming interested in other breeds more suited to squab production, such as the Carneaux.

He believed the San Francisco market would absorb many more squabs than local breeders could supply, and after an investigation, started a partnership with his brother at the present location. Later he bought out the brother's interest, meanwhile having won fame throughout the world, because of the success of his breeding stock at leading shows.

MANY TROPHIES WON

More than 200 cups and trophies and thousands of ribbons decorate the well-equipped office, and bear witness to King's prowess as a breeder. He is an officer of National associations and is one of the organizers and president of the Alameda County Squab Breeders' Association.

The latter organization, with more than 100 members, does an annual business of $125,000, and has contributed much towards Hayward's reputation as the pigeon center of America. More than 100,000 pigeons are maintained within a radius of five miles of the town.

King's squab shipments, alone, often bring him $250 to $300 in a single week. He is equipped to turn out 100 dozen a week, and has shipped as many as 40 dozen dressed squabs and 80 dozen alive in one day.

The Association maintains a receiving station in San Francisco, where an expert grader handles all birds and supplies the needs of the trade. King, however, has widened his own market by shipping large numbers personally to New York and Philadelphia.

"New York is the best squab market in America," says the Hayward breeder, "and San Francisco is the best in the West. But we believe local consumption can be increased greatly by means of publicity and advertising. Thousands of potential buyers are not familiar with the delicious, healthful quality of squab meat.

"We have done some advertising already with good results, and individual breeders are doing much to stimulate consumer demand. There is no danger of overproduction in California if proper steps are taken to dispose of the squabs; this calls for co-operative effort."

But the squab (Continued on Page 9)

Partial view of the King lofts, where pigeon raising has been reduced almost to an exact science. Old style houses in foreground. New houses have wire-covered enclosure extending over the roof.

These three birds were among those chosen to represent the King ranch at the National Pigeon Show this year. This breeder has won hundreds of valuable cups and trophies.

Left—H. A. Linthicum, Secretary-Treasurer, Western Squab Breeders' Association, which does an annual business of more than $125,000. Right—C. R. King, President of the organization.

The little daughter of the pigeon king is holding a four-weeks-old squab, just ready for the market, although it has not yet learned to fly.

This is the home the pigeons built. Sixteen years ago the owner was reading meters for a public utilities company. He made his start with two pairs of "homers" in Los Angeles

The largest and the smallest cup won by this enterprising pigeon specialist. The tiny trophy was captured by breeding birds, and the big one by record-breaking homing pigeons.

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
FEBRUARY 3, 1924

Legalized Honesty Pleases Producer, Consumer

How Fruit and Vegetable Standardization Has Benefited Industry—Former Opponents Silenced—Suggestions for Further Improvement

By GEORGE P. WELDON

Pomologist Chaffey Junior College of Agriculture; Contributing Editor of ORCHARD and FARM

SINCE 1915, when the first attempt was made to standardize the fruit pack by process of law, this movement has grown by leaps and bounds.

The writer recalls very well the opposition met by early standardization advocates. The idea of compelling the fruit grower to prepare a certain kind of pack in accordance with law was looked upon by some as a violation of the principal of personal rights, and uneasiness was seen to be cropping out on every hand.

PROFESSOR WELDON

Apparently, however, this feeling has passed away; at present there seems to be little opposition to the enforcement of these laws, and if there is any criticism, it relates to methods of enforcement rather than requirements.

Since the passage by the legislature in 1915, of two laws, the Fresh Fruit Standardization Law and the Apple Standardization Law, the popularity of the movement has been very clearly reflected in the attitude of subsequent legislatures which in every case since then have passed certain amendments for strengthening the laws and bringing about more strict enforcement.

Such amendments have been strongly backed by the fruit interests of the State, and today our standardization laws are as nearly perfect as the best thought and most careful work of the men most interested in our fruit industry can make them.

A real stumbling block was encountered in 1915 when the attempt was first made to enforce the new law and it was discovered that its provisions applied only to interstate shipments of packed fruits and not to intrastate lots.

Imagine the effect of such a law on the character of fruits in our local markets! This weakness, however, was remedied by the legislature of 1917 which passed an amendment applying the provisions to both interstate and intrastate shipments, and from that time to the present a constructive program of education and law enforcement has been carried forward.

After two years' experience in attempting to enforce the new act, the writer in an article for the Monthly Bulletin of the State Commission of Horticulture in 1917, wrote as follows:

"The experience of California fruit growers, shippers and packers has been such under the provisions of the act of 1915 that the sentiment in favor of the standardization movement in general is practically unanimous, and it is only those few who are expecting too much in a short space of time that are disappointed.

"We cannot expect to revolutionize the business of packing fruit in one season or in ten seasons, but through a process of gradual evolution we can, with the aid of good laws, improve from year to year, and it is safe to predict the already good reputation that California enjoys for her fine fruit will be extended because of her greatly improved pack."

VEGETABLES STANDARDIZED

The first fresh fruit standardization law passed in 1915 applied only to cherries, peaches, apricots, pears, plums, prunes, grapes, berries and cantaloupes. The present law, as a result of the latest amendments, applies also to the following: Almonds, walnuts, oranges, quinces, tomatoes, onions, sweet potatoes, potatoes and lettuce. In addition, it applies to dried fruits when deception has been practiced in the preparation of the pack.

The vegetable work has added much responsibility to the inspection service, and has proved to be fully as important as fruit standardization.

The chief opposition to standardization at first came from certain people representing the consumers of fruits. This opposition resulted from the belief that the movement was designed to benefit the grower financially, and that so the consumer would be made to suffer because of a great increase to him in the price of the standardized product.

Experience has shown the claim of the consumer to be unjustifiable. It is true that a good pack of fruit sells for more in the markets than a poor pack, but it is worth more and the consumer is the one who benefits most because he gets the value of his purchase.

Farm Adviser Logan Inspecting Tomato Pack in Humboldt County.

Through improved quality in the pack, the grower undoubtedly benefits also and no one should begrudge him a fair profit for his labors, since the future fruit industry of this State is dependent upon the financial success of the grower. Without agricultural prosperity (and in California that means horticultural prosperity) there cannot be general prosperity in other industries.

OLD EVILS CITED

Before the days of standardization, there were two evils of common practice; one, the marketing of underripe fruit and the other, the preparation of a deceptive pack. It is not necessary to do more than mention the fact that at one time the growers of such fruits as oranges, grapes, plums, apricots, cherries and peaches entered into a mad scramble to get their fruit into the early season market when prices were nearly always good.

The evil effect of this practice was seen later during the height of the shipping season, in a much demoralized market. Standardization effectively has prevented the shipment of green fruit in any great quantity. The 8-to-1 test for oranges, the Balling sugar test for grapes and the maturity standards for other fruits and vegetables have had the desired results and the consumer of California fruits as never before is able to purchase goods with assurance of dependability.

Deception in packing furnishes one of the chief reasons for standardization. At one time it was practiced here and there, with practically all of the fruits. It was possibly an outgrowth of the facing practice. This in itself was not detrimental, but underneath a facing layer of fine fruit of the best quality and size would be found a grade of fruit far inferior to that in the exposed layer, and in some cases a practically worthless product. Today when one purchases a box of strawberries or a basket of plums, he is reasonably sure that they are good to the bottom of the container.

The latest de- *(Continued on Page 10)*

Government Discovery May Revolutionize Pear Industry

Favorita, Choice Imported Spanish Variety, Resists Blight at Chico Plant Introduction Gardens

By ROBERT W. HODGSON

Agricultural Extension Service, University of California

TO those familiar with the development of the pear industry of the United States the fact that blight is a limiting factor in the extension of commercial plantings is well known. This one factor undoubtedly is of far greater importance than all others combined. Before the advent of blight pear culture was far more widespread in the United States than it is at the present time. It is, perhaps, not too much to say that plant pathologists and fruit growers ever since the introduction of the blight into this country have been waging a losing fight against this dread disease.

ROBERT W. HODGSON

Notable progress has been made in the introduction of markedly blight resistant stock. Among the leaders in such work is [illegible] Reimer of the Southern [illegible] Agricultural Experiment Station, who during the past ten years [illegible] hundreds of varieties introduced from all parts of the world, [illegible] crosses made in this [illegible] search for stocks and [illegible] will withstand pear [illegible]

Among the most interesting and promising stocks discovered are the [illegible] and Calleryensis species [illegible] from China. The first introduction of these species proved to be [illegible] blight [illegible] although [illegible] have shown a wide variation in blight resistance in the seedlings, emphasizing the need of a satisfactory method of root propagation, in which substantial progress has been made in recent years.

DEVELOP BLIGHT-PROOF STOCKS

While satisfactory blight-proof stocks have been developed, horticulturists and growers alike have long hoped that blight-proof varieties might be found, with fruit equal to the standard varieties. The discovery of blight-proof stocks has been a decided step in advance and has made possible the so-called "three-quarters blight-proof" tree consisting of blight-proof roots, trunk and main framework branches, with only the fruiting portion composed of top-worked standard varieties—susceptible to this disease.

It now appears that the problem may have been solved in the introduction, in 1912, by the United States Department of Agriculture, of the Favorita pear, which has for 10 years been under test at the Chico Plant Introduction Gardens, where it has given wonderful results. The tree is a strong, upright grower, remarkably attractive and entirely satisfactory.

Although repeated blight inoculations have been made, few have "taken" and these invariably have progressed only to a limited extent and then gradually died. The quality of the fruit leaves little to be desired, comparing very favorably with the Bartlett, principal California variety. Shipping and canning tests have shown the variety to be equal to the Bartlett in these respects.

SWINGLE MAKES IMPORTATION

The variety was introduced from Granada, Spain, where the cions were purchased from Pedro Gariand, at the request of Walter T. Swingle of the Bureau of Plant Industry.

Recent notes on the behavior of the variety at the Chico Plant Introduction Gardens give the following description:

"A large, full-necked pear of greenish-yellow color, splashed with red. The flesh is tender, melting and juicy. It is fruited in California, where it ripens about the middle of August."

Comparison of these notes with the description of the fruit as secured at the time of its introduction indicates that this variety behaves in California in a manner similar to that in the section where it was discovered, where it also is reported as a summer pear ripening in August.

A. M. Morrow, superintendent of the Chico Plant Introduction Gardens, is very enthusiastic about the future of this variety and states that after subjecting it to every test he can think of in comparison with the Bartlett pear, he believes it to be equal to this variety in every respect with the additional feature of being practically blight-proof.

Arrangements now are being made for testing the Favorita in the principal pear growing sections of California. This spring a number of varietal tests will be located in the Antelope Valley pear sections of Los Angeles County. It already is under test in the Sacramento Valley districts.

IS PROMISING INTRODUCTION

While it still is perhaps too early definitely to state the place of this variety in the pear industry of California, it is without doubt the most promising introduction made in the history of pear growing. The name under which it was introduced has led some pomologists to believe that it may have originated from the old and well-known Clapp Favorite variety, which originated in Massachusetts many years ago. A careful comparison of the two varieties was made during the past season, and while they are in some respects similar, they differ materially in others, indicating that any relationship between the two still is to be proved.

According to the Twelfth Annual List of Plant Introductions, now available for distribution to experimenters, a limited quantity of trees of this variety is available for distribution. In order to hasten the testing of this variety under California conditions, California pear growers are urged to make application for a few trees for trying out. Application should be made to the office of Foreign Plant and Seed Introduction, United States Department of Agriculture, Washington, D. C.

Trees from this office are given with the understanding that they will be given much more than ordinary attention and reports on their behavior furnished from time to time.

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY
By THE EDITOR

SECRETARY OF AGRICULTURE WALLACE has not much use for those who lack sympathy with the farmer, or understanding of rural problems.

"There are those," said the Secretary during a recent address, "who believe the farmer must work out his own salvation by following a program something like this: Produce as much as you can and as cheaply as you can of what you can produce the best; spend as little as possible; do without everything you can; work as hard as you can; make your wife and children work as hard as they can. Then take what comfort you can from the thought that if you succeed in doing what you set out to do, and most other farmers succeed also, you will have produced larger crops than can be sold at a profit and you will still be under the harrow."

NATIONAL FARM PROGRAM JUSTIFIED.

Unfortunately the attitude so aptly described by Wallace is that held by many individuals. They object to any official Government action on behalf of the farmers on the ground that it smacks of paternalism and class legislation. They express fear of the consequences of interference with what they term "natural economic laws."

But these unsympathetic observers seem to forget that overproduction and unsound conditions resulted from artificial stimulation and price fixing during the War.

At that time the farmer was deprived of many of the benefits that would have come to him had there been no interference with economic laws. Why should not agriculture, then, receive the same consideration accorded since the war to other industrial groups?

SPECIFIC SUGGESTIONS OUTLINED.

Among the planks suggested by agricultural leaders for the 1924 farm platform are: (1) Strengthening the co-operative marketing movement; (2) enlarging the scope of educational work in order to increase efficiency and lower the cost of production; (3) controlling production in proportion to demand; (4) making available to the farmer, through Federal and State agencies, information which he cannot secure for himself but which he needs in order to produce and market intelligently; (5) disseminating knowledge which will enable the farmers to take advantage of credit facilities now provided; (6) reducing freight rates as much as possible; (7) working out some plan whereby surplus over domestic requirements may be carried over or disposed of at a fair price.

GO AND GET IT.

Secretary Wallace has pledged himself to do all in his power towards carrying out this program. But it is up to us to make the real fight. All things may come to him who waits—if he waits long enough. But in the meantime the Go-Getter is likely to bring home the bacon. Let us continue to support the Farm Bureau and other organizations, and each do his individual share towards improving the economic and social position of all.

What's New?—Keeping Abreast of Agricultural Progress

Severe Pruning Hurts Roots

THAT severe pruning of fruit trees hinders rather than stimulates root growth has been proven by recent experiments. It was shown that a new "balance" is maintained between top and root growth.

English Buyers Want Cotton

EMPOWERED by British interests to contract for San Joaquin Valley cotton at 20 cents a pound, a representative of Manchester (England) mills has been active recently in Tulare County. He plans to ship raw cotton direct to the mills without reshipment at Liverpool, and says this should result in a higher price to the California producer. This expert is said to have praised the quality of Central California cotton.

Dehydration Wins With Prunes

THAT it is only a matter of time until all California prunes will be dehydrated seems to be the consensus of opinion after reviewing results of the past season. In a recent address, Professor A. W. Christie, dehydration expert of the California Agricultural College, stated more than 100 new dehydrators were erected in California during 1923, and about one-fifth of all the prunes in the State were dehydrated this year in some 200 drying plants.

More Publicity for Ayrshires

THE California Ayrshire Club recognizes the value of publicity in promoting the interests of the breed, recently voted to increase the circulation of its official organ, "The Ayrshire Advocate," to 5000 copies each month. The publication will be distributed among owners of grade herds, and every effort made to stimulate the growing popularity of the Ayrshire in California. Anyone desiring information should address George W. Fry, Secretary, La Honda, Calif.

California Roses Go East

TEN carloads of California rose bushes recently were shipped from Los Angeles to Eastern points. A large share of the garden seeds used in the United States are grown on the Pacific Coast, which also is peculiarly well adapted to the growing of fine trees and plants.

A single grower annually ships over 3,000,000 tomato plants to the intermountain region, while millions of flower bulbs are grown in Santa Cruz and San Diego Counties and sold in Chicago and other Eastern cities.

Corn at High Altitude

AT AN elevation of 2100 feet in Placer County, O. Roher has raised excellent crops of Egyptian corn and Milo maize without irrigation, according to a communication addressed to the Farm Bureau monthly. "I was told I was wasting my time trying to raise grain here without water," said Roher, "but got an enormous crop. Ground was plowed good and deep in the spring, then harrowed with a spring tooth. The seed was put in with a corn planter. Small grain was sown after the corn stalks were removed.

Farm Adviser Achievements

THE vast amount of constructive work accomplished during the past year by the six members of the Extension Service assigned to Los Angeles County is indicated by the following facts:

The total distance traveled was equal to more than four times around the world; 500 visits were made to farms, 561 meetings held, with a total attendance of 36,791; 500 articles written, 781 test and demonstration plots were established or kept under observation, 6,500 letters written and information supplied to 5000 persons who called at the Farm Adviser office.

Cold Storage Sweet Corn

THE roasting ear season was substantially extended last summer by E. G. Kentner of Carlsbad (San Diego County) by keeping in cold storage a large quantity of sweet corn. The latter was gathered from a field which had been bought by real estate operators, who wished at once to prepare the land for residence purposes.

Kentner, whose Twin Inn chicken dinners have a Statewide reputation, already had put in a refrigeration plant to take care of the immense quantities of poultry consumed by his guests. The Carlsbad country is noted for early vegetables and growers welcome the prospect of extending by refrigeration the sweet corn marketing period.

New Hog Cholera Treatment

THE recent appointment to the staff of the College of Agriculture of Dr. W. H. Boynton as Professor of Veterinary Science, focuses attention upon his accomplishments in the control of the rinderpest in the Philippine Islands, where he has been doing research work. But even more interesting is the information that Dr. Boynton has produced a new anti-hog cholera vaccine which, it is said, is not only "fool proof" as to method of administration, but also capable of conferring permanent immunity in nearly every case. The Boynton vaccine is injected into the mouth of the hog, but according to reliable reports, may even be administered with the food. California stockmen will await with interest Dr. Boynton's arrival. He is expected to come this spring.

Egg Association Growing

THE number of poultrymen who shipped eggs through the Poultry Producers of Southern California increased from 442 in 1922 to 471 in 1923, while the number of eggs handled increased during the same period from 384,000 dozens to 474,000 dozens, a gain of 23 per cent.

The storage situation is a disquieting feature of the egg market according to Producer managers, who have this to say about it:

"Locally our consumption has been enormous, but in spite of this, or perhaps because of it and the large number of outside eggs our market has attracted to Los Angeles, we still have 41,184 cases of eggs in local warehouses, compared to 12,[illegible] last season."

Wheat Council Very Active

CALIFORNIA recently experienced in "Eat [illegible] Week" an example of the activities of the Wheat Council of the United States, which has adopted for its program: Reduction of acreage, more efficient production and stimulation of domestic consumption of wheat foods. The organization has the support of the American Farm Bureau Federation and the indorsement of President Coolidge. "Eat More Wheat" is the slogan now being given National publicity. The Wheat Council was founded in June, 1923, as the result of a conference called by the governors of seven States. It is a non-profit, co-operative organization supported by producers, millers, bakers and all those associated directly or indirectly with the industry. Headquarters are at 77 West Washington street, Chicago.

Avocado Growers Organize

STEPS have been taken by the avocado growers of Southern California to form a marketing association, by the representatives of the eleven districts into which the territory has been divided. George B. Hodgkin, secretary-manager of the California Avocado Association, is taking a leading part in the formation of the selling organization.

In explaining the need for concerted action among avocado growers, K. A. Ryerson, avocado specialist of the Extension Service, has this to say:

"The present tonnage in sight this year, despite the loss through wind, furnishes quite a marketing problem. There is a great deal of non-bearing acreage already set out and a considerable boom in new plantings.

"Carload lots of Florida fruits are already being marketed in California. The problem has gotten beyond satisfactory handling by individual growers."

"THEY SAY"

DOCTOR IVERSON

DR. J. P. IVERSON

Chief, Division of Animal Industry, State Department of Agriculture

ANY unusual results that may have been obtained by this department of the State government are not due to the work of any one man, but rather to the loyal co-operation of all members of the organization.

That we do encounter more difficult conditions than those existing in other States, however, is conceded.

From Humboldt County, with its fifty inches of rainfall, to Imperial, where desert conditions prevail; from Modoc, which resembles northern Nevada and eastern Oregon, to San Diego, which is like southern Italy—through an amazing range of climatic and soil conditions we must carry on our work.

In addition, we must deal with people of many nationalities. In the dairy and sheep industries, particularly, many foreigners are engaged.

All these things call for constant exercise of tact and judgment on the part of those engaged in field work and the enforcement of laws.

It is not correct, however, to regard the members of the State Department as police officers. Although they sometimes are called upon to exercise this authority, they are in reality doing constructive, rather than destructive work.

The laws they enforce were drawn with a view to benefiting the industry and the State. These regulations do not work a hardship [illegible] any one who conducts his business [illegible] fair manner and according to law.

On the other hand, we cannot always [illegible] the regulations literally in applying [illegible] various conditions. We must [illegible] problems and deal with them [illegible].

I want to hear from any one who is [illegible] fied with any [illegible] of my department. Usually any little misunderstanding [illegible] cleared up if it is [illegible] immediately.

The success of our work depends upon the co-operation of the people. The [illegible] recognize the fact that [illegible] improve. As a matter of fact, no [illegible] regulation can succeed unless the people [illegible] it.

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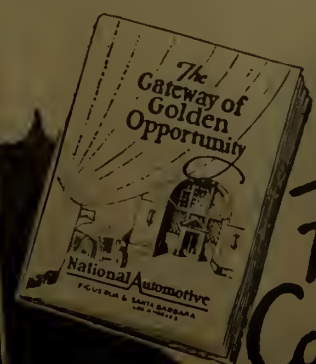

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Morris & Snow Seed Company of Los Angeles Issues Big Annual Book for Free Distribution

The Morris & Snow Seed Company of Los Angeles, one of the oldest and largest seed houses in California, has just issued its 1924 catalog. The new and enlarged book contains a vast amount of valuable information to orchardists, ranchers, gardeners and growers generally. The big book is really a manual because of the "Hints on Growing" which presents valuable information on spraying, fumigating, fertilizing and use of insecticides. It tells how and when to sow seeds and set out plants for best results, and explains the correct use of tools and implements. Notes on marketing, telling how, when and where to buy and sell to advantage are another feature of the 1924 volume.

The big catalog contains 64 pages and has more than 150 illustrations. It is said to be the most complete book of its kind ever issued in the Southwest. The company announces that a copy of the book will be sent free to readers of this paper who write for it. The address of the Morris & Snow Seed Company is O-439 South Main Street, Los Angeles, Calif.

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More About the Bulb Business

Information Concerning One of California's Newer Industries—Pointers on Planting, Cultivation

By O. H. BARNHILL

"CAN flower bulbs really be grown as easily and successfully as indicated by a recent article in Orchard and Farm?" inquires an interested reader. "I have read the Government bulletin on bulb production, which gives the impression that the business is quite difficult and complicated, requiring expensive special equipment, while Bridgeford, the Van Nuys grower, is represented as producing flower bulbs about as easily as onions.

"The Government authority advises against planting in rows, tending with a wheel hoe and cutting the blossoms, all of which are done by the San Fernando man. Counting 350,000 tulip bulbs to the acre at $20 per thousand, $7000 would be required to buy planting stock for one acre. Would you advise a beginner to invest this much money in a flower project?"

In order to obtain additional first-hand information about the bulb business, the writer again visited the Van Nuys Bulb Farm. Bridgeford, the genial proprietor, displayed an S. O. S. sign, having been snowed under with inquiries from interested readers, who taking literally the statement that help gladly would be extended to all beginners—had asked for everything from advice to money.

Most of them did not even enclose stamp for reply and appeared to think a bulb grower had little else to do besides dispensing free information about his business. Fortunately, it was the slack season and all inquirers were given some kind of an answer, thanks to the generosity of the Van Nuys flower man.

HAS UNIQUE SYSTEM

Bridgeford hesitated to describe his methods more particularly. "My experience is so different from that of most bulb growers that I dislike to say anything upon the subject, because it seems as though I am contradicting my fellow workers," he explained. "I have no fault to find with other growers. Their methods probably are all right for the conditions under which they are working. But I get good results, therefore see no reason for changing my methods."

The bulletin referred to was written by David Griffiths of the U. S. Bureau of Plant Industry, and described the Government's experimental bulb farm at Bellingham, Wash. Tulips are planted in beds 3 by 12 feet. The rows are six inches apart and extend across the beds. Each bed and row is laid out with mathematical accuracy.

Before planting, the soil on each bed is shoveled off to a depth of four inches and replaced when the bulbs have been set. In digging the bulbs, this ground again is removed with a short spade. Cultivation is entirely by hand.

The bed system is preferred, according to the Government authority, because it is impossible to cultivate with an implement closer than three inches to the row, leaving a six-inch strip to be stirred and weeded by hand. When the rows are more than six inches apart, the extra space is considered wasted. The beds are only a foot apart. This system permits of the maximum number of bulbs per acre being planted.

With a hand plow, Bridgeford opens up long, shallow furrows a foot apart, into which the bulbs are set in a double row each bulb being placed opposite the space between two bulbs in the other row. Three hundred thousand bulbs are planted on one acre, compared to 350,000 in beds. Practically all the cultivation is with a wheel hoe, which it is claimed does not injure the plants.

"Of course cutting off the flower stems checks the growth of the plant," admitted Bridgeford, "but if the blossom can be sold for more than the bulb, why hesitate to cut?" In Los Angeles we have an exceptionally good flower market, yet it easily could be oversupplied by bulb growers. The beginner however, can safely count on paying expenses by selling cut flowers.

"We aim to cut tulips only from strong, vigorous plants, which have practically made their season's growth before the flowers are gathered. It is not the removal of the blossom and stem, but the leaves, that injures the plant. Buyers like to have flowers with long stems and leaves."

"Some say that tulips 'run out' in Southern California, producing smaller and smaller bulbs each year. How about it?"

"They never have behaved that way in our gardens, where we have grown them for ten years," answered Bridgeford. "Of course the flower stems do not grow as long here as they do in cooler climates."

"What does the bulb grower need in the way of equipment?"

"Well, you see what I am using with a planting of 2,000,000 bulbs."

The visitor saw nothing but boxes, bags and hand tools—not even a shed for storage and sorting, the residence being used for that purpose.

"But where is your apparatus for fumigating planting stock and treating them with liquid chemicals?"

"We use a wash tub, setting another tub on top of the bulbs to keep them entirely submerged in the formaldehyde solution, which destroys all insect life and spores of fungus disease. We lose very few plants by disease but dry and burn all which become infected.

ADVISES SMALL START

"How much money would you advise a beginner to invest in planting stock?"

"Only a few hundred dollars," replied the veteran floriculturist. "Start with freesias, which are the bulbs easiest to grow. Of course they are cheap, but they offer sure money to the inexperienced grower who will use ever reasonably good judgment.

"A beginner is (Continued on Page 10)

Sorting bulbs on a Pacific Coast bulb farm. Below—Uncleaned tulip bulbs.

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IT is becoming increasingly the fashion for city business and professional men to invest in and develop California ranch property.

An interesting example of this laudable tendency is afforded by the horticultural venture of three Government officials of San Francisco.

With a combined area of 110 acres, their adjoining olive orchards, near the Loma Rica tract, northeast of Marysville, have been an important factor in the horticultural development of that rich district.

The owners are J. S. Wardell, former Internal revenue collector, now an income tax expert in private practice; W. H. Tidwell, formerly a special agent of the Customs Service, and S. E. Armstrong special agent in charge at the San Francisco Custom House.

"Opportunities in the Marysville-Oroville-Chico district are attracting the attention of investors from all parts of the State," said Armstrong recently. "Probably nowhere in the world can lands so well suited to citrus and olive production be obtained at such reasonable rates. We bought our land at very low prices and although we have had a long wait for the trees to come into bearing, the increase in value has been well worth the cost in time.

"Mature olive groves, with the cheap water available in our district, are worth up to $1000 an acre. Yet raw land has sold in recent years for less than $100."

The Wardell orchard, planted in 1915, now is on the verge of heavy commercial production. Bidwell's trees were set out in 1917 and Armstrong's in 1918.

"In my case, at least," concluded Armstrong, "the investment in this orchard land has represented savings which I might not have made otherwise. I believe many other professional men would find it to their advantage to make judicious investments in California farm and orchard lands.

"We nearly all have that inherent desire to get back to the soil, at least during a part of our days, and the combination of California climate and good roads is well night irresistible to any one who has felt this urge at all.

"No, I do not regret my orchard venture; on the other hand, I am very well pleased with it, and expect to make money as well as gaining satisfaction by producing an essential food product.

"The depression in the olive industry seems to be a thing of the past now. I am told it has been an impossibility recently to supply the demand of the trade for ripe olives. I understand the crop from 110 acres near Oroville was contracted for $125 a ton for the first quality fruit and $90 for oil sizes."

What Attracts Chandler?

DR. W. H. CHANDLER, who recently succeeded J. C. Whitten, deceased, as professor of pomology in the College of Agriculture, University of California, gives the following reason for leaving Cornell University and locating in the Golden State:

"I came to California, leaving an unusually fine educational environment, because of the very interesting nature of the fruit industry in this State.

"It seemed to me that in a State where so many kinds of fruit are grown under such diverse climatic conditions, and particularly where the conditions as to water supply and winter temperature are so diffirent from those under which fruits have generally been studied, one might make a larger contribution toward the development of a comprehensive body of knowledge concerning the responses of fruit trees.

"I am convinced that only when such a body of knowledge has been developed can the fruit grower be safely advised as to the solutions of problems that may confront him."

Pumpkins Find Favor

PUMPKINS are gaining in favor as a valuable stock feed, especially in the interior valleys, where they grow so well Not only hogs, but also horses and cows like them. A little patch raised at practically no expense in a neglected corner or between the orchard rows, will do much to cut the feed bill and keep the animals healthy when other succulent feed is scarce.

A CORRECTION

A communication from Vernon Coons, of Elk Grove Calif requests correction of an error appearing in our issue of January 13 It was stated that Mr Coons is raising Brown Turkey figs whereas this grower has an orchard of Brown Ischias "I have received for my crops from these trees 8½c a pound f. o. b. shipping point for the past three years" he writes.

BABY CHICKS

LEGHORNS WHITE BROWN BUFF
BARRED ROCKS
R. I. REDS
BLACK MINORCAS
ANCONAS
BUFF ORPINGTONS

PRODUCED FROM PUREBRED STOCK. SEND FOR PRICES.

ANSEL W ROBISON
DEPT. O 1196-98 MARKET ST.
SAN FRANCISCO, CALIF.
[illegible] CRAFT OIST BUCKEYE INCUBATORS AND BROODERS.

Going to Build?

[illegible] Lumber [illegible] profit [illegible] builders supplies

Contractors' and Builders' Supply Co.

[illegible] Oakland, Cal.

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Canada's rich black loam gives high yields per acre. Average prices for farm products should give you independence and success.

There are still good farms and millions of acres of fertile land in Canada at very reasonable prices and terms. Convenient marketing facilities, railroads, grain elevators and stock yards, towns, cities, good roads, schools, churches, agricultural colleges and universities provide modern recreational and educational advantages that are the equal of your own.

NEW AND ATTRACTIVE TERMS LOW TAXES—INCREASING VALUES

To assist actual farmers purchasing land the Canadian National Railways have adopted a new policy of terms of payment which will make it easy to acquire title from the proceeds of the farm. The farmer need not fear adverse crop years. Our terms will protect him.

You can buy land unsurpassed for fertility along the lines of the Canadian National Railways for an average of $20.00 an acre. No tax at all on buildings, improvements, animals, machinery or personal property.

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The price of fertile farm land is so low that many renters unable to succeed in high priced land districts, find it easy to pay for their farms in Canada. Large yields per acre mean more money. The work you put into your farm builds up something you own—not something to hand back to the other fellow.

Canada's opportunities are not restricted to Renters only. Here you can buy several times as much acreage for the money you now have invested in land. The fertile soil produces bigger crops per acre. That means more money—and the chance to get the rise in value on much larger acreage. Here there is land for expansion—and land on which to set up your sons.

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CERTIFIED White Leghorn quality chicks from selected free-range, heavy-laying, utility hens mated to double pedigree cockerels with authentic trapnest records. Our breeding flocks are inspected and accredited by the Sonoma County Farm Bureau. Safe arrival and full count of live vigorous chicks guaranteed. Accredited "AA" grade chicks at single "A" prices. Send for catalogue and attractive spring prices. MUST HATCH INCUBATOR CO., INC., the World's Largest Electric Hatchery, 432 7th St., Petaluma, Cal.

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WEBB'S WHITE LEGHORN CHICKS—You will get plenty of eggs if your chicks come from WEBB'S CACKLE FARM. 2500 choice selected hens mated with cockerels from trapnested hens with records of 200 and better. 12 years SANTA CRUZ largest poultry breeder. Prices 15c up to Feb. 1st, 12½c from Feb. 1st to March 15th, and 10c thereafter. A. M. WEBB, 227 Parkway, Santa Cruz, Calif.

BABY CHICKS—Only the better grade at popular prices—Hanson White Leghorns, Brown and Buff Leghorns, Reds, Barred Rocks, Anconas, Black Minorcas, Blue Andalusians, White Wyandotte and Buff Orpingtons. Order early. Free folder. McDONALD POULTRY RANCH AND HATCHERY, Route 1, Box 246, San Jose, Calif.

NINE-TENTHS of the time. This system has made the raising of chicks the easiest branch of the poultry industry and is becoming popular at wild fire speed among all wide awake poultrymen. Write for free folder. STEVE'S BROILER RAISING SERVICE, 527 Chronicle Bldg., San Francisco, Calif.

WHITE LEGHORN BABY CHIX of unusual value from especially well culled hens mated with full pedigreed males. Prices per 100: February $15; March, $14; April, $12.50; May and June, $12. 100% live strong chix guaranteed. We are accredited by the Sonoma County Farm Bureau. THE PIONEER HATCHERY, 476 Sixth St., Petaluma, Calif.

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POULTRY

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PEERLESS rabbit hutches; convenient, sanitary, fully equipped, prices low, freight prepaid. J. K. DOLAN, 1816 E. 25th st., Oakland.

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LEAF TOBACCO: chewing, five pounds, $1.75; ten, $3.00; smoking, five pounds, $1.25; ten, $2; pipe and recipe free. Pay when received. CO-OPERATIVE FARMERS, Paducah, Ky.

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FORD OWNERS, BE COMFORTABLE. Buy a [illegible] and make a [illegible] coupe of your Ford Touring model, $12.50; roadster, $7.50. H. V. CARTER CO., [illegible] St., San Francisco.

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Lyon, upright grower, early bearer, large, hard-shell fruit, highest in official analytical test—oil 26.89%, protein 4.57%, seed 9.7%. The Lyon grows upright and can be planted from 10 to 12 feet apart each way, from 300 to 400 trees per acre.

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Visitors welcome on week days only.

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FIGS—Planters of large or small acreage of figs will find it to their advantage and profit to get in touch with us. We have 200,000 fig trees grown by us, near San Fernando—Kadota, Black Mission, Black San Pedro and Brunswick. Land is to be subdivided this year and we must move them. KELSEY-OXFORD NURSERIES, Valley Blvd., 2 miles west of El Monte, Calif. Phones: Alhambra, 919J3; Res., 763R1.

5 CAR LOADS of fruit trees just received at our distribution and sales yard. We can now handle wholesale and retail orders in any quantity, also for commercial planting. We are distributors for the largest growers in the State. Call and see us. QUIRK NURSERIES, Route 2, El Monte, Calif. Phone Alhambra 1646J5. Location, at Rosemead on main boulevard between Los Angeles and El Monte.

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BERRY PLANTS—"Advance" blackberries. We started picking this variety commercially April 16th this past season. The berries brought $9 per crate wholesale. We have 18 acres of Advance." Write for catalog. We also offer Loganberry, Dewberry, red and blackcap Raspberry. STRAWBERRIES: Klondyke, Carolina, Progressive Everbearing. If you want strawberries this summer don't delay planting. Visit our 36-acre berry field. PRESTON & KNOTT, Buena Park, Calif.

ADVANCE BLACKBERRY: [illegible] weeks earlier than any other variety and best shipper, hence biggest moneymaker; pfd. on mkt. to all others. Now offered for first time. Order quick and get the big money. 10, $3 postpd.; 1000, $120 exp. [illegible]. Loganberries, raspberries, strawberries, thornless blackberries. Winter rhubarb 10, $1 postpd. W. A. Lee, [illegible].

STRAWBERRY PLANTS: Carolina, [illegible] Everbearing No. 1 plants [illegible]. Write for prices. BROYLE'S BERRY RANCH, Van Nuys, Calif.

FOR SALE—Oregon Plum and Brandywine strawberry plants, $1.00 per hundred or $7.50 per thousand. W. KETTHOFF, Occidental, Sonoma Co., Calif.

50,000 CHOICE inspected [illegible] plants. Unusual low price. HARRY LANDM[illegible], Route 4, Salem, Ore.

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CITRUS LAND irrigated, cleared $[illegible] to $[illegible] acre. Trees bear [illegible] years from bud. Don't need fertilizer. [illegible] Two and three truck crops [illegible] per cent cash, balance ten years [illegible]. Investigate Lower [illegible] Valley lands at Mercedes, Hidalgo County, Texas. Write for free booklet. AMERICAN RIO GRANDE LAND AND IRRIGATION COMPANY, [illegible] A Southland Life Bldg., Dallas, Texas.

OUR BACK-TO-LAND PLAN. We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land, deep, rich, tried soil, complete irrigation with cheap water, thorough drainage, rail, water and highway transportation. Write owners, SUTTER BASIN COMPANY, California Fruit Bldg., Sacramento, Calif.

560 ACRES LEVEL VALLEY LAND. Eighteen miles from Sacramento. Fine for fruit, grapes, nuts, olives and alfalfa, with water for irrigation. Fourteen feet. No surface hardpan. $85 per acre. $[illegible] down, balance time at 6%. EBEN BROWN, Resident owner, Elk Grove, Cal.

POULTRY and BERRY FARMS, in sunny California in the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, California.

REAL ESTATE FOR EXCHANGE

MISSION FARM for exchange, [illegible] acres, extra fine land, [illegible] new [illegible], we located [illegible], suitable for dairying and general farming. [illegible] EGGERS, Burlington Jct., Missouri.

SOUTHERN OREGON [illegible] for California [illegible] property [illegible] $[illegible],000. BOX [illegible], Lakeview, Ore.

FARMS WANTED

CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., O[illegible].

REAL ESTATE FOR LEASE

CHICKEN PLANT, equipped, [illegible]00 [illegible] for [illegible] [illegible] F. K[illegible], Garden Grove, Orange County, Calif.

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ALFALFA SEED, Original Hairy Peruvian. When writing state amount wanted. [illegible] TURNER, Yuma, Arizona. [illegible] years [illegible] Yuma Valley Farms.

GLADIOLUS, 20 large mixed, $1; [illegible] size, $1; 25 Primulinus [illegible] price list. C. O. JORGENSEN, [illegible].

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NEW and rebuilt implements at [illegible] prices. Call and see them. ARNOTT & CO., 114 S. Los Angeles St., Los Angeles.

California White Leghorn Breeding Farms

SUPERIOR ENGLISH LEGHORNS, INTERNATIONALLY KNOWN

THE WORLD'S BEST

Write for mating list on pedigree [illegible] and [illegible] [illegible] for January and February. [illegible] March and April sold. Hatching eggs now [illegible] importation [illegible] to [illegible] egg records.

ECKMAN & MILLIGAN, Lankershim, Cal.

TIRES WITH 500 NAIL HOLES LEAK NO AIR

A new puncture-proof inner tube has been invented by a Mr. M. C. Milburn of Chicago. In actual test it was punctured 500 times without the loss of air. This wonderful new tube increases mileage from 10,000 to 12,000 miles, eliminates changing tires and makes riding a real pleasure. It costs no more than the ordinary tube. Mr. M. C. Milburn, 311 West 47th St., Chicago, wants them introduced everywhere and is making a special offer to agents. Write him today.

When answering ads please mention Orchard and Farm

Send for my FREE Catalog
Red Top Steel Fence Posts and Farm Fencing
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You can be quickly cured, if you
STAMMER
Send 10 cents for [illegible] book on Stammering and Stuttering, "Its Cause and Cure." It tells how I cured myself after [illegible] years. B. N. Bogue, 9001 Bogue Bldg., [illegible] N. Ill. St., Indianapolis.

Pigeons Feathered His Nest

(Continued from Page 2)

business is but one branch of King's enterprise. He ships breeding birds to all parts of the world, the price ranging from $5 a pair to $50 each for blue-ribbon individuals.

King has several breeds, including homers which he keeps for sport and which he enters in races. One of his homing birds recently flew from Pocatello (Idaho) to San Francisco in a day and a half, shattering all previous records. These remarkable fliers often attain a speed of a mile a minute. Hungarians and Strassers also are maintained in the King lofts.

For squab production, Carneaux of different colors, White Kings, Giant Runts and Silver Kings are preferred. The latter breed was originated by King 12 years ago, and represents a mixture of the blood of the Giant Runt, Maltese, Silver Homer and Silver Mondain. This type is short, blocky and quick to mature and, according to the owner, now breeds true to color, being recognized as a distinct breed.

"The ideal squab," King points out, "is one which reaches a weight of one pound at four weeks, without leaving the nest.

"The parent birds feed the youngsters, first on a secretion known as pigeon milk, and later on the grain and seed mixture we furnish. It is largely because of the ideal weather conditions prevailing in California that we can turn out so many marketable squabs in so short a time."

King may be called a "crank" on the subject of feeding. "This is one of the most important factors in successful pigeon raising," he points out. "Many breeders make the mistake of trying to save money by using second-rate, musty or improperly cured grain, which in the long run usually costs more than the best. A good rule is to feed nothing to the birds which one will not eat himself.

"The breeder who has only a few birds, may find it most satisfactory to use the prepared mixtures." King buys in carload lots, however, and mixes his feed as follows:

Twenty pounds small yellow corn, 15 pounds hard red wheat, 20 pounds kaffir corn, 20 pounds peas, 5 pounds hemp seed, 10 pounds, milo maize, 10 pounds "Gyp" corn.

Eleven kinds of seeds, including millet, radish and other common sorts, are added. King often has $5000 worth of feed on hand at one time. He buys at the right season and stores the grain on the ranch.

Pigeons require plenty of good, clean, sharp grit. This breeder recommends a mixture made up of 40 pounds granite grit, 40 pounds oyster shell, 10 pounds charcoal, 5 pounds Venetian red, 5 pounds salt. The theory is that the more grit and shell the birds use the more feed they will consume, thus keeping in better condition.

The grain is given twice daily. The grit mixture is distributed twice a week. Three men devote all their time to the care of the 15,000 or more King pigeons. The owner, himself, however, is often one of the three. He is not a "front porch" producer, but is as likely as not to be found carrying a feed bucket or culling his birds—that is, when he is not traveling about the country, "making" the show circuit.

HINTS FOR NOVICE

"All very interesting," we fancy the reader exclaiming at this point, "but doesn't it require expert knowledge to raise pigeons? And what are the opportunities for the novice?" Anticipating these questions, your correspondent made suitable inquiries.

"No, it doesn't require any expert knowledge," King answered at once. "Any one who likes birds and is willing to study their ways can raise pigeons successfully. However, I wouldn't advise any one without experience—particularly if he had not established a market—to go into the business on a large scale.

"Start with a few pairs of one breed—preferably a squab, rather than a fancy breed—and increase gradually.

"A man should make a living with 1000 pairs, for they should net him $2 to $3 per pair a year.

"Pigeons usually mate for life, and a mated pair will produce squabs for five or six years. They are at their prime at four years."

PIGEONS HARD WORKERS

Two eggs are laid at each "clutch," and the male and female take turns on the nest, as well as in feeding the squabs. They are tremendously hard workers and sometimes keep two nests going at once, feeding squabs in one, while hatching eggs in the other.

"Raising pigeons," concluded our informant, "is just a matter of common sense. Give them plenty of fresh air with no drafts (which I provide by using these open front houses, built back-to-back); use only the best feed and provide plenty of it; keep the water supply fresh and pure; study your birds and learn how to buy breeding stock; cull your flock in order to build up quality and vigor. That's all there is to it."

Sounds simple enough, doesn't it? But it has taken a good deal more than common sense to establish King as the king of pigeon raisers. Back of his present prosperity stretch sixteen long years of the closest application to business. And King loves pigeons just as other men love horses or poultry or cattle or fruit trees.

This inherent liking for the work, together with unusual business ability and salesmanship have elevated him to his present enviable position. He is interested in breeding, production and marketing problems. But the observing visitor finds that he reverts most frequently to discussion of his pets—the homing birds.

Were these feathered friends taken thousands of miles away and released in a strange environment, their owner knows they would fly unerringly over mountains or water, without pause for food or rest, and at almost unbelievable speed straight to their hilltop home in Hayward. Is it any wonder they hold first place in his heart?

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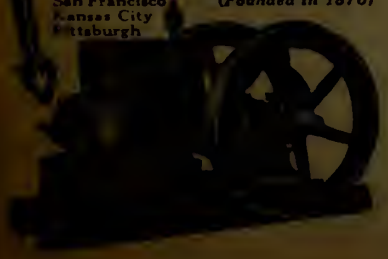

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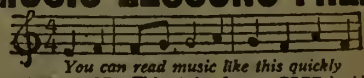

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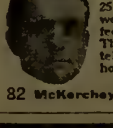

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Seasonable Honey Suggestions

By J. D. BIXBY, Sr.

PREPARE FOR EARLY HONEY.

Orange blossom and black sage honey flows come very early, and in order to obtain a good crop bees must be ready for them. It is the strong colonies that produce a surplus, weak ones merely build themselves up for later flows, which may not come.

J. D. BIXBY SR.

If you have had some experience in your locality you will know about when swarming commences. Thirty to forty days before that time, go over the entire apiary and mark the number of frames in each hive containing brood. The number will probably range from two to seven.

Use three as a dividing line. Go to each colony having less than four frames with brood and remove from it every frame containing sealed brood. Brush the bees back into their hive and add the frames of brood to the colony having the most brood until it has seven frames of brood.

If this colony should appear weak in numbers of hatched bees, add one or two frames less in order that they may fully cover the increased brood. Frames of honey or pollen removed from the increased colony should be put in place of the ones removed from the weakened colony.

Proceed in this way until all the stronger colonies have a full complement of frames of brood. This brood begins to hatch immediately, the queen is greatly stimulated and within a very few days you will need to furnish a super of combs to give the queen more room. Watch the bees closely, keeping the queen down to two stories by an excluder and add supers of combs in advance of absolute need.

Now let us return to the reduced small colonies. They have no sealed brood, but a disproportionate number of young bees. Consequently, they work with increased energy and in a surprisingly short time will be ready for a super. Give them plenty of room and you need pay them no further attention until extracting time when they will be built up into good colonies.

PRODUCING FANCY HONEY.

Occasionally an apiarist who has a select private trade wishes to produce fancy honey and is willing to sacrifice quantity to quality to some extent. To do this, provide an abundance of frames of foundation or clean, white combs that have had no brood raised in them. Keep the queens of parent colonies confined to not more than two stories, to induce early swarming, but not too early else swarms will be too small for best results.

When a colony swarms, hive the bees on the old stand, on full sheets of foundation, keeping the queen in the lower story by an excluder. Move the old colony some distance away, so as to throw the entire field force into the new colony. If you can use the combs of the old colony for nuclei, or to strengthen weak colonies then brush every bee from them into the new hive.

Use the same method in producing fancy comb honey, except that no queen excluder will be necessary. By this method the nectar comes in contact with nothing but clean, white comb and comb surfaces never become travel-stained by the bees walking over old combs.

"LEST WE FORGET," HONEY

A large producer of extracted honey who delivered 93[illegible] cases of 120 pounds each to the 1920 pool of the "late lamented" Exchange received a net return of 8¾ cents per pound. Not so bad, when we think of the five and six-cent price we were glad to get in 1913-14 for our very best orange and sage honey. However the former price does not compare favorably with the 16 to 20 cents received by outsiders—those who were lucky enough to sell the same year. But where would the outside market have been if the Exchange had not carried over 130 cars of honey, some of it for two years?"

HORSE BEAN WINTER HONEY

Windsor Horse Beans again are proving their winter value to the beekeeper in our mild weather. Where they have been sown as a cover crop and brought into bloom by [illegible], bees are working busily on them and a temperature of 28 degrees seems not to have left them injured.

POOR 1923 HONEY CROP

The average yield of California honey for 1923 was 27 pounds per colony, compared to 34 pounds in 1922, and a 5-year average of 55 pounds. Unusually dry, cool and windy conditions mainly were responsible for the shrinkage in production. There was but little surplus honey produced before July 1, the average for the State being only 13 pounds per colony, compared to a 5-year average of 36 pounds at that date.

TRIMMING MARKET WAX

In preparing your beeswax for market trim the bottom of each cake severely, to remove the refuse that settles there. This refuse, generally burned honey pollen and foreign substances, is a great attraction to the bee moth and often causes merchants' stocks of wax to be much injured during warm weather. The wax trimmed off with the refuse goes into the next batch of wax rendered and is not lost.

KEEPING OUT BUD MOTH.

When you are cutting out old combs and gathering scraps for wax rendering pound them all down hard into a box, unless you intend to render them at once. This will prevent the wax moth from working in the material.

DON'T STOP FEEDING BEES

Bees are beginning to breed now, along the coast, and consequently consume increasing amounts of honey. Keep up the feeding, especially in weather when the bees cannot fly. A few days' neglect may cause starvation.

Standardization Work

(Continued from Page 3)

velopment in standardization has come about through co-operation of the State Department of Agriculture with the United States Department of Agriculture, Bureau of Markets. It is "shipping point inspection."

This work involves examination of carload lots of fruits and vegetables and the granting of a certificate which serves as a guarantee to the buyer that the product conforms to certain standards.

Shipping point inspection is considered one of the most valuable developments of the entire standardization movement. The call for inspection by shippers has been so great that at one time during the height of the shipping season of 1923 more than 100 inspectors were employed jointly by the State Department of Agriculture and the Bureau of Markets.

At present there are in California fifty men who spend their time inspecting fruits and vegetables as they are prepared for shipment. Since last July, according to W. F. Allewelt, Chief of Standardization Bureau, Department of Agriculture, 31,000 carloads of fruits and vegetables have been inspected, not including apples, of which approximately 3000 carloads were examined.

This huge task is made possible by a charge of $5 per car inspected. Thus the work is self-supporting and is not a drain on the regular State finances.

The growth and popularity of standardization indicate that the movement is one that will live. California's fruit and vegetable industries are of such vast importance that every effort must be made to protect the public against the deceptive and short-sighted practices which at one time prevailed.

The co-operation of the Federal Bureau of Markets with the State Department of Agriculture savors well for the movement which naturally has gained tremendous headway because of the magnitude of our fruit and vegetable industries.

The future no doubt will witness developments along somewhat different lines. The canning industry, which is unprotected by our present laws is entitled to just as much protection as the fresh and dried fruit industries.

Exemption of by-products from the terms of the standardization act, and the inclusion of canned goods under the term by-products perhaps is unwise.

At any rate, we know that something is needed to establish public confidence in the canned fruit and vegetable products which at present are purchased very largely on faith. Definite standards and a system of labeling cans so that the consumer can tell something about each grade of fruit or vegetable should be provided for in a revised standardization law.

Business everywhere is learning that permanent prosperity is builded on honest practices and that anything which courts dishonesty in the preparation or labeling of our fruit products either when fresh, dried or canned is a detriment to the industry. Agriculture will not be on a basis of permanent prosperity until such practices are eliminated.

Growing Flower Bulbs

(Continued from Page 6)

tempted to try some of the higher priced bulbs, but let him plant freesias for his main crop. They will provide him with a meal ticket. Having this, he can plant a variety of higher priced bulbs experimentally, increasing the number from year to year of such as prove profitable.

"Don't buy forcing bulbs at $20 per thousand for propagation purposes, but planting stock, which in the case of freesias can often be picked up for as little as $1 per thousand. At this price it will take only $[illegible] or $[illegible] worth of bulbs to plant an acre."

When told that many persons seemed skeptical regarding the production of first class bulbs in Southern California, Bridgeford smiled indulgently.

"When Professor Griffith the Government horticulturist who wrote the tulip booklet visited my place he was simply amazed at the size and quality of stock we were producing," related the San Fernando bulb expert.

"He was not convinced until he himself had dug a bushel of sample bulbs of different kinds from my garden. He wanted to know what particular method was used to produce such fine bulbs. I told him all we did was to stick them in the ground about as you would plant onion sets, then hoe, water and dig.

"Griffith is a very fine able man," added Bridgeford. "His bulletin contains a great deal of valuable reliable information and should be read and studied by those who expect to go into the bulb business. The Division of Publications, U. S. D. A., Washington, D. C. will send it to anyone for [illegible]."

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FEBRUARY 10, 1924

Solving Walnut Production, Marketing Problems

McNees' Theory and Practice

MANY valuable and practical pointers in the walnut game can be gleaned from the experience of Ralph McNees, vice president of the California Walnut Growers' Association and one of the most successful producers in the State. An interesting angle of the walnut industry is that its chief enemies at the present time in some sections are codling moths and subdividers who covet the land—*The Editor.*

By O. H. BARNHILL

DRESSED in a semi-military khaki suit, Ralph McNees, veteran Whittier walnut grower, gives the impression of a successful officer in the army of food producers, one who has fought a good fight and obeyed the Scriptural injunction: "Subdue the earth."

He has subdued a section of the planet so thoroughly that it has enabled him to retire to a strategic position just back of the battle line Here, from his comfortable home in the city, he directs orcharding operations in his nearby groves.

McNees came to California from Ohio 30 years ago and engaged in the lumber business. He loved the soil, however, having farmed in his younger days, and decided he would like nothing better than to grow nuts in this genial clime.

First buying and planting a small tract just west of town, he later extended operations, buying and improving more land with nut money, until he became one of the largest—as well as one of the most successful—walnut growers on the Pacific Coast.

What are some of the more important things this prominent grower has learned about the walnut industry—varieties, planting, pests, cultivation, fertilization and marketing?

SEEDLINGS BEAR WELL

As for varieties, McNees has a very high regard for the old Santa Barbara soft shell, parent of most of the sorts now grown in California.

"Seedlings seem to bear better than budded trees," he states. "The trouble with seedlings, of course, is that they will not all be good, uniform trees. Occasionally, however, a seedling grove is very successful. Mr. Sharp has one of 50 acres that yields a ton of nuts per acre annually, double the average for the State. This orchard was planted 23 years ago, a single tree furnishing all the nuts.

"One of my seedlings bears 400 pounds each year. A large number of young trees have been top-worked with buds from this tree.

"There is an advantage in growing a black walnut tree and then top-working it to an English variety, because the former has rough, heavy bark, which protects the trunk better than that which covers the English walnut. The roots of the latter, however, seem to withstand rot more successfully than do those of the native black walnut."

Planting two or four times as many trees as the ground ultimately is expected to support, with the expectation of taking out part of the trees when they begin to crowd, is believed to be a mistake, because invariably the permanent trees are injured by the fillers, the lower limbs of the former being stunted.

DOUBLE PLANTING DANGERS

"The trouble with this method," explained McNees, "is that an orchardist is prone to postpone pulling out the fillers, when he knows they should come out, excusing the delay on the plea that one year more won't make any material difference.

"Sometimes he temporizes by cutting off interfering lower limbs of the fillers. This throws so much sap into the remaining top limbs that they make a rank growth and bear heavily, the result being that many break off and in falling injure branches of the permanent trees.

"Peaches or vegetables may be grown in a young walnut orchard, provided the ground is well fed and watered."

Wire bracing is considered better than props, provided the wires are attached to screw eyes or bolts. When the pressure comes on the bark, circulation is interfered with and injury results.

The Whittier district has been comparatively free from fungus diseases and insect pests. Blight takes a small annual toll of nuts and plant lice suck juice from some of the leaves, but the losses from these sources are not serious.

MUST SPRAY FOR MOTH

The codling moth, however, has become established in sufficient numbers to make spraying imperative. Destroying moth larvae by running walnut sacks through hot rollers heretofore has been largely relied upon to keep this pest in check, but has proven an insufficient precaution.

"The only successful way of combating this pest is to make spraying or dusting a community proposition," declares McNees. "What is the use of a man cleaning up his orchard if it is going to be infested with moths from a neighbor's grove?

"In pest control work of this nature organization is a great help. Saticoy growers all belong to a local association and appropriated $50,000 to fight the codling moth. Every orchard is sprayed by the association when needed and the expense charged to the owner, who is required to contribute to the spray fund."

McNees has not decided which is the cheaper, spraying or dusting. Dust is easier to apply, but more material is required, he claims.

Mr. McFadden of Irvine (Orange County) dusted his walnut trees twice at an expense of $35 per acre, while Mr. Cook of Capistrano (San Diego County) sprayed his trees once at a cost of $21 per acre.

In spite of the recent laboratory soil moisture tests at Davis, McNees still believes in the efficacy of the dust mulch. He also considers it possible to conserve moisture by compacting the surface of the soil, basing this belief upon the fact that ground which had been made hard on top by tramping contains more moisture than well cultivated orchard soil. This apparent anomaly is explained by the theory that a thin, hard crust of top soil shuts off moisture evaporation in much the same way as does a board or flat rock.

A sturdy track-laying tractor is used to loosen up the subsoil where irrigating furrows are run, in order to permit the water freely to percolate through the soil to all parts of the root systems of the trees.

The fertility problem has been found a hard one to solve. In former years, when nearly everybody kept a cow and one or more horses, manure was plentiful and could be had for two bits a load—sometimes for cleaning it up. McNees used to haul large quantities onto his orchard, when not busy with crop work. The fertilizer was dumped in piles and later spread evenly over the land.

As a result, the trees produced an average crop of a ton to the acre for five consecutive years. Production since has dropped to 1500 pounds, which is considered a good yield.

"Stable manure is scarce and hard to get," declares McNees. "If you don't believe it, go out and try to buy some. It will cost you $4 to $5 a ton delivered. I am going to buy a motor truck and haul my own manure, picking it up here and there, wherever it can be found. By this method I think the cost can be cut in half."

Three years ago McNees started to give his entire orchard a heavy manuring, covering successive plots each year. The first year he applied $700 worth of fertilizer and the next year a similar amount. This year he moved to town—and the manure didn't get hauled, as he smilingly admits. He uses superphosphate regularly.

GROWING COVER CROPS

Many leguminous cover crops have been grown. Green manuring is considered practical and profitable, provided conditions are favorable—fertile soil, plenty of moisture, early fall rains and small trees. These conditions no longer prevail in the McNees orchard; therefore, cover crops are to give way entirely to manuring.

"I used to sow melilotus indica in August, after the last summer irrigation," relates McNees. "Pickers tramped in the seed and the first fall rains brought it up, giving the clover an early start."

Permitting a cover crop to drain the soil of moisture and fertility late in the spring is considered bad practice. At this season the trees are in bloom, producing pollen, an exhausting process requiring optimum conditions for best results. Unless an abundance of water is available, early plowing in February or March is recommended.

HYDRATION WILL HELP

Drying by artificial heat is expected to reduce the number of moldy, discolored nuts by quickening the time of transit from tree to sack. The French people excel Americans in harvesting walnuts, pulling the nuts off the trees just as soon as ripe and removing the hulls two days afterwards, before the shell has time to discolor.

"Marketing problem? We haven't any," replied McNees, "since the California Walnut (*Continued on Page 9*)

The McNees' farmhouse, framed with giant walnut trees, form a pleasing profitable, vista.

Numbers painted on the trunks make it possible to give each tree individual attention.

This new and attractive residence in Whittier is much appreciated by McNees.

Apple Brush Fertilizer

H. M. LUMSDEN, San Bernardino County, inquires about apple prunings for fertilizer.

Apple brush may be used as fertilizer by cutting it up and plowing into the soil. It has less value than citrus prunings, because the leaves are of more value than the wood and there are no leaves on apple brush —J. E. COIT

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
FEBRUARY 10, 1924

Trying Out Commercial Fertilizers in California

Best Results Secured by Using Chemicals and Barnyard Fertilizers in Conjunction With the Growing of Leguminous Orchard Cover Crops

By A. A. JUNGERMAN
Stanislaus County Farm Adviser

THE subject of orchard fertilization is one of the complex problems in California fruit production, due to climatic differences and wide range of soils. Perhaps more money is spent by California farmers for commercial fertilizers without getting definite results than for any other operation.

The need for more definite knowledge in the use of soil amendments and commercial fertilizers as applied to growing fruit, especially figs and peaches, still is a problem for further investigation. Results secured from tests made during the past few years by growers and members of the Agricultural Extension Service show the need of further investigation before definite recommendations can be made.

A certain fertilizer that may give good returns in one section of the county may not prove profitable in another section. For example: Commercial fertilizers, rich in available nitrogen—such as nitrate of soda and sulfate of ammonia—gave practically no increase in yields on fruit trees in the North Coast counties, while in the interior valleys some increase in yield was recorded.

Soils dark and heavy in character responded little to a chemical fertilizer rich in available nitrogen, while in light, sandy soils—such as Fresno sandy loam—showed some results to trees in increased yield of fruit and in the color of the leaves, which were made a darker green color. It also produced a later maturity of the fruit, in the case of peaches. This was observed both in Stanislaus and Merced Counties.

FERTILIZATION OF FIGS

No particular difference in the effect of commercial fertilizers on fig trees has been noted, due perhaps to the difficulty of accurately checking up results in yields of the fertilized plots over check plots not fertilized. In Stanislaus County six growers for two seasons carried on extensive fertilizer trials on figs, using lime in varying amounts, lime-and-sulfur, gypsum, manure, superphosphate bone meal, bean straw, complete fertilizer and sulfate of ammonia. The only difference that could be noted was that the vegetation and cover crops grew more vigorously where highly nitrogenous fertilizers were used, such as nitrate of soda and ammonia sulfate. In one instance a grower thought he could see a difference in the color of the foliage of his fig trees, which were a darker green.

The effect of the application of lime on souring and splitting of the figs gave no definite results. Figs soured and split just as badly on lime treated plots as on non-treated plots in Stanislaus County. One grower in the Ceres district four years ago thought he got beneficial results from use of lime by having less souring and splitting, while four of his neighbor growers who used lime the same season, reported no beneficial results.

Two most striking results were secured in increase of peach yields. On 16-year-old Elbertas in the J. M. McCormick orchard at Modesto an application of three pounds of sulfate of ammonia per tree applied early in January showed in 1922 an increase of 85 pounds of fruit per tree on ten trees over the check row, while in 1923 on the same row and same rate of application gave an increase of 26 pounds per tree, barely paying for the cost of the fertilizer.

In the McCormick orchard the commercial fertilizer that gave the next best increase to the sulfate of ammonia was a superphosphate applied at the rate of four pounds per tree. This gave an increase over the nitrate of soda applied at the rate of three pounds per tree and gave 43 pounds increase over the check row per tree in 1922, while it gave but 12 pounds per tree increase in 1923—which did not pay for the cost of application. But these rows gave greater returns from the use of superphosphate than did rows treated with nitrate of soda.

Increase in peach yields also was reported by C. M. Conner, Tulare County Farm Adviser, from the use of 300 pounds of sulfate of ammonia and five tons of barnyard manure per acre.

Old peach orchard showing effects of proper use of fertilizers and soil amendments.

In the R. S. Hiatt orchard in 1922 on 18-year-old Lovells, ammonia sulfate applied at the rate of three pounds per tree showed an increase of 56 pounds per tree on an average over the check row. In 1923 an application of three pounds per tree showed an increase of 72 pounds per tree over the check row that received no application.

In this test, lime and also gypsum gave no increase over check rows; lime-and-sulfur gave a slight increase. Bone meal gave a fair increase, as did bean straw and manure.

In the J. W. Evans peach orchard at Ceres, sulfate of ammonia gave no material increase in yield over check rows, in 1922.

From the foregoing it is evident that more reliable information is necessary before definite recommendations of wide application of certain commercial fertilizers can be made. Growers constantly are inquiring whether a certain fertilizer will give results or whether another fertilizer is better. Answers necessarily must be indefinite, because no definite results have been obtained from tests conducted with definite check plots, to determine the advantage of each fertilizer in a particular district over a period of years.

Do not purchase commercial fertilizer promiscuously, even if agents give wonderful promise of great returns in increased yields of fruit. Such fertilizers should be used first in a small way and tried out definitely with a check plot, where results must be carefully weighed. A certain fertilizer may work in one section of the State, but prove a failure in another locality.

In the interior valleys, where denitrification is usually present, some form of nitrogenous fertilizer would seem beneficial. Such material can be obtained more easily and for less money by the use of organic matter in the form of either cover crops or bean straw and barnyard manure, wherever the latter are available.

WHERE CHEMICALS HELP

I am inclined to believe that our best use of commercial fertilizers is in conjunction with the growing of legumes for cover crops. In this work we have arrived at fairly definite conclusions in Stanislaus County on the use of certain soil amendments and fertilizers which have given increased yields. One grower by the use of lime and sulfur combination has almost doubled the yield of his cover crop.

The results on alfalfa tests carried on by our office show that lime-and-sulfur, Toro sulfur, superphosphate-and-gypsum and manure gave definite increase in yields and can be expected to give definite increases in yields of cover crops. Some of the commercial composts which are primarily composed of lime, with some sulfur and rock phosphate, may be used to advantage for the purpose of increasing cover crop growth, rather than for increased fruit production without cover crops.

Incorporation of organic fertilizers, such as manures, has a much greater value than the use of chemical fertilizers. The former have proven beneficial on practically all soils and crops in this State, with abundant water supply. Any grower who has visited the Riverside Experiment Station and has seen the experimental plot that has been conducted for a period of years on the use of commercial fertilizers compared to cover crops and manures can see for himself the great advantage in the use of the latter two, for the health of trees, their vigor and growth, color of foliage and for the physical condition of the soil.

NEED ORGANIC FERTILIZERS

Where chemical fertilizers have been used for a period of years without additional organic matter the soils have begun to run together; they take water less easily; the trees have begun to deteriorate, showing yellow foliage; while the physical condition of the soil is much poorer in every instance.

I believe we should consider seriously the growing of more cover crops for the permanency and health of our orchards, as orchards in this county that have grown cover crops continuously for the past seven years—in spite of the fact that the trees *(Continued on Page 10)*

Proper Method of Figuring the Farmer's Taxable Income

Revenue Officials Offer Seasonable Suggestions for Making Out Rural Income Tax Returns

TO THE farmer the problem of correctly making out an income tax return for the year 1923 should present no unusual difficulties. [illegible] Form 1040 was used only [illegible] reporting net income in excess of [illegible] use for reporting net income [illegible] year 1923 is required when the [illegible] regardless of the amount [illegible] from "a business or profes[illegible] farming," and in all [illegible] where the net income was more [illegible]

[illegible] who keeps his accounts [illegible] receipts and disbursement [illegible] a record of the [illegible] actually received and the [illegible] actually paid for expenses— [illegible] income tax return for the [illegible] on that basis. He must in[illegible] gross income for the year [illegible] value of mer[illegible] property received [illegible] of live stock and produce, [illegible] raised on the farm, profits [illegible] livestock or any other [illegible] purchased, profits [illegible] rental of farm lands [illegible] from all other taxable [illegible] expenses will be the [illegible] paid out during the [illegible]

[illegible] their accounts [illegible] inventories at the [illegible] taxable year [illegible] reporting on this basis, the gross profits are obtained by adding to the inventory value of livestock and products on hand at the end of the year the amount received from the sale of stock and products and other miscellaneous receipts, for hire of teams, machinery and other things during the year, and deducting from this sum the inventory value of stock and products on hand at the beginning of the year, plus the cost of stock and produce purchased during the year. The farm expenses will be the actual expenses incurred during the year, whether paid or not.

Farmers who keep their accounts on the cash receipts and disbursements basis are required to file a schedule of farm income and expenses on Form 1040F, which must be attached to the individual return on Form 1040. With farmers who keep their accounts on the accrual basis, the filing of Form 1040F is optional.

All necessary expenses paid or incurred during the year 1923 in the operation of a farm as a business enterprise may be deducted from gross income in ascertaining net income, upon which the tax is assessed. These include the expense of harvesting and marketing of crops and the cost of seed and fertilizer used. Amounts expended for the purchase of feed for live stock may be deducted, but the value of a farmer's own products used for such purposes is not a deductible item.

The farmer may deduct the cost of small tools used up in the course of a year or two, wages paid to farm hands (other than domestic servants) and rent paid for farm land and buildings (other than the dwellings), cost of repairs to fences, wagons and machinery, also bills paid for horseshoeing, stock powders, rock salt, veterinary service, insurance (except on the dwelling), gasoline for operating power and sundry minor expenses.

The value of produce raised on the farm and used in the board of farm laborers may not be deducted as an expense. The farmer may, however, deduct the cost of food purchased for his laborers. The value of the services of the farmer himself his wife or dependent minor children cannot be deducted unless the amount is reported by the recipients as income on Form 1040.

The purchase price of an automobile, even when used wholly in farm operation, may not be deducted as it is regarded as an investment of capital. The cost of gasoline, repairs, and upkeep of an automobile, if used wholly in the business of farming, is deductible as an expense; if used partly for business and partly for the pleasure and convenience of the taxpayer or his family, such cost may be apportioned accordingly, and that proportion of cost attributable to business deducted.

General deductions such as for taxes, losses, interest on indebtedness, bad debts and contributions are explained in instructions on the forms.

Every single person whose net income for 1923 was $1000 or more, or whose gross income was $5000 or more, and every married couple whose net income was $2000 or more, or whose gross income was $5000 or more, must file a return.

The exemptions for the year 1923 are $1000 for single persons, $2500 for married couples whose net income was $5000 or less, and $2000 for married couples whose net income was in excess of $5000. In addition, the taxpayer is allowed a credit of $400 for each person dependent upon him for chief support, if such person is under 18 years of age or incapable of self-support because mentally or physically defective.

The return, accompanied by at least one-fourth of the amount of tax due, must be filed with the collector of internal revenue for the district in which the taxpayer lives or has his principal place of business. The filing period is from January 1 to March 15, 1924.

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TO SERVE—All those who for pleasure or profit engage in any branch of the basic industry—AGRICULTURE.

Farmer's Viewpoint

BY-PRODUCT POSSIBILITIES.

Farmers may have solved [illegible] problems in a fairly satisfactory manner, but in the manufacturing and processing of their [illegible] there is much to be done to reach the pork packer's ideal—"Utilize everything but the squeal."

As an indication of what might be done with our citrus fruits, Naples, Italy, in six months sold $4[illegible] worth of citrate of lime, $[illegible] worth of oil of lemon, $200,000 worth of orange oil and $[illegible] worth of citrus peel.

SCIENCE SAVES FARM DOLLARS.

Some "practical" California farmers have been buying mineral mixtures for their milk cows, paying for the material at the rate of $4[illegible] per ton. A "book farmer" sent some of the stuff to Berkeley for the College of Agriculture to analyze. It was found to contain 8[illegible] per cent salt. This would make the remaining 1[illegible] per cent cost over $[illegible] a pound.

Undoubtedly the best way to learn to farm is by farming, but there are some things which only can be ascertained in a chemical laboratory. Feeds, veterinary remedies, fertilizers and spray materials need careful testing by competent scientists. Otherwise the user is more or less in the dark as to the exact composition and value of such preparations.

We should avail ourselves of every facility which the Federal and State Governments have placed at our disposal for the solution of farm problems.

HELPING NEWCOMERS TO SUCCEED.

The best thing about Yolo County's plan for converting grain lands into dairy farms is its provision for helping newcomers to succeed. Members of the Board of Trade feel that the project will not be a real success unless the first comers are so well pleased with Yolo farming that they will induce their relatives and acquaintances to join them in that new-old Land of Opportunity. It is the repeat orders that count and cut down the overhead expense.

"We feel that if these dairy farmers are guaranteed success they will attract other dairy farmers," explains Secretary Fred Shaffer. "It is our [illegible] purpose to select only efficient farmers and to follow them through to success. We know they will bring their friends to Yolo County when they succeed."

FARMERS KEEP ON BUYING.

A crop failure or one sold at unprofitable prices [illegible] put the farmer out of business even temporarily, in the way that other industries are affected by disastrous conditions. The farm is a [illegible] one that continues to function in spite of drouth and flood, frost and pest, low products prices and high operating costs.

Banks always are ready to advance funds to the farmer who is following a safe and sane system of land cropping and livestock production, realizing that it is to the interest of the entire community to maintain agricultural production. When farms are [illegible] cities [illegible]. Farmers need supplies and equipment during hard times and crop failures much the same as at other seasons—and they usually get them.

LOST MOTION ON FARMS

An eastern Texas farmer estimated that in the course of several years he had walked forty-five miles in plowing and cultivating around a single stump. Finally, with six bits worth of dynamite, he blew out the stump and the following year raised $1[illegible] worth of sweet spuds on the ground formerly occupied by the stump.

There is a lot of waste motion on farms where there are no stumps. Take, for example, the wasted time entailed by moving machinery out in the weather from one season to another. Time is lost in getting the implement fixed up and in running order.

Farm buildings often are not arranged so as to economize time in doing chores. The same criticism can be made of the general arrangement of the entire farm.

No need to talk to the long-suffering farmer's wife about lost motion, due to a poorly arranged house and lack of labor-saving appliances.

What's New? — Keeping Abreast of Agricultural Progress

Ford Buys Many Ayrshires

A FOUNDATION herd of 100 Ayrshire cows recently has been purchased by Henry Ford on his 9[illegible]-acre farm at Dearborn, Mich. The milk of this dairy is to be used to supply patients at the Ford General Hospital. The cows and three Ayrshire bulls were purchased from the Gossard Farm at Ravenna, Indiana.

Dry Vegetables for Summer

DEHYDRATION of vegetables in the home for summer use instead of winter, as in other parts of the country, is the interesting project being sponsored by Miss Miller, Imperial County home demonstration agent. It is pointed out that the Imperial Valley farm family frequently does without green vegetables during the summer months when they are much needed, because of the withering effect of the heat. From October to April the garden is at its best.

Enlarge Kern Cotton Fields

AS A result of good yields and prices Kern County cotton growers this year are expected to enlarge their fields to the extent of 2[illegible] acres. Many farmers have obtained yields of [illegible] pounds or more per acre. Prices at the gin, which is owned by 200 growers, were 2[illegible] to [illegible] cents a pound, according to reports.

Pickers were paid 1½c per pound. The cost of ginning was $1.7[illegible] per 100-pound bale, bagging and tying the same. The Weed Patch gin near Bakersfield is expected to process [illegible] bales.

Pest Control Information

CIRCULAR No. 265, "Plant Disease and Pest Control," by W. T. Horne, E. O. Essig and W. B. Herms of the Plant Pathology and Entomology Divisions, has been reprinted by the University of California Agricultural Experiment Station and is again available for distribution. This circular forms a comprehensive handbook on diseases and pests affecting field crops, trees, nuts, vegetables and flowers, and includes also household pests and animal parasites. Every farmer should have a copy at hand for consultation. Address College of Agriculture, University of California, Berkeley.

Winter Cucumbers Are Shipped

A CONSIGNMENT of winter cucumbers grown out doors under cover recently reached the San Francisco market from the Imperial Valley.

They were produced by H. A. Terwilliger of Holtville, said to be the first Imperial Valley farmer to grow "cukes" in the manner employed by Japanese gardeners in the coastal districts.

Terwilliger has two acres of cucumbers under gauze coverings. The flavor of the product is said to be excellent. This grower has found, however, that the seed for the winter crop must be planted closer than for a spring crop, since the vines do not spread so profusely.

Baby Lima Growers Unite

GROWERS of 1[illegible],540 acres of baby lima beans in the San Fernando Valley have signed up with the California Lima Bean Growers' Association as a result of a recent very successful membership campaign. This is 8[illegible] per cent of the total acreage to be planted to baby limas the coming season in that section, and is [illegible] per cent greater than last season's association acreage in San Fernando.

Directors of the association give [illegible] credit for the success of the campaign to J. H. W[illegible], manager of the [illegible] and [illegible] associations, who directed the campaign. Practically all the banks of the San Fernando Valley supported the campaign.

Humboldt Cows Go South

THE rich [illegible] valleys of Humboldt and Del Norte Counties [illegible] are developing into a higher and [illegible] [illegible] namely, the supplying of high testing cows to dairymen in California [illegible] need [illegible] for [illegible] milk supply.

This is [illegible] by the fact that [illegible] in [illegible] County [illegible] for the [illegible] farms [illegible] the [illegible] city [illegible] Los Angeles [illegible] recent [illegible] District.

Imperial Strawberries Profitable

STRAWBERRIES are regarded as [illegible] commercial planting in the Imperial Valley [illegible] increasing importance.

One [illegible] grower [illegible] a 4[illegible]-acre tract devoted to this crop. The plants were set out during the period from January to March at a cost of approximately $[illegible]. A total of [illegible] plants was used. They were started three feet apart in rows [illegible] feet [illegible] plants which developed during the summer [illegible] were allowed to make root making [illegible] early new.

It is predicted strawberries [illegible] of the valley's most profitable and [illegible] crops. The fruit matures at a time when there is little market [illegible]. Shipments [illegible] February first and [illegible] a [illegible]. The berries are distinguished by their [illegible] flavor and large size. Only tested varieties known to withstand the summer heat are recommended.

Butter Sold by Mail

SAID to be one of the most successful cooperative marketing associations in the Middle West, the Rowena [illegible] Butter Company, Muskegon County (Michigan), does [illegible] per cent of its total business [illegible] direct with consumers. Most of the [illegible] customers who [illegible] butter by parcel post live in Detroit. The [illegible] members are said to have realized [illegible] to 11 cents a pound more for their products than members of other cooperative creamery organizations which have sold at wholesale.

Walnut Dehydrators Make Good

THE season just past has demonstrated [illegible] the value of dehydrating plants to the walnut industry, according to the California Walnut Growers' Association. For a period of two weeks heavy fogs interfered with drying. In the Saticoy district, where some sixteen dehydrating plants were in operation, the first week's deliveries to the [illegible] house showed a great advantage in favor of the dehydrators. Approximately 1[illegible] per cent of the total tonnage handled [illegible] was delivered during the first week [illegible] per cent delivered by growers [illegible]. Growers report that dehydrators are great [illegible] savers, while buyers have shown no discrimination against the dehydrated product, the Association reports.

Pima Cotton Coming Back

CALIFORNIA cotton growers will be interested in a report from the U. S. Department of Agriculture pointing out the [illegible] of Pima cotton by American [illegible]. [illegible] for this variety for manufacture of [illegible] stimulated production during the war, [illegible] the demand fell off comparatively [illegible] were [illegible].

Recently, however, Pima has [illegible] manufacturers of [illegible] [illegible] and more of [illegible]. Department asserts if [illegible] were assured of a sufficient supply of [illegible] to meet their requirements. Copies of [illegible]. [illegible] of Pima Cotton may be obtained [illegible] by writing [illegible] Office of Information, U. S. D. A., Washington, D. C.

Want Avocado Trademark

THE California Avocado Association, [illegible] East Seventh street, Los Angeles, [illegible] prizes for an avocado trademark.

First, 12 avocados per month for one year; second, same for six months, [illegible].

"The suggested name should, as far as possible, express the characteristics of the avocado," [illegible] the association [illegible].

"As product [illegible] rich [illegible] nearly perfect [illegible] high [illegible] fruit which makes it a natural [illegible] [illegible] to any part of a meal from cocktail to dessert."

All names must be in by [illegible], 1924. Avocado [illegible] may be obtained from the University of California, Berkeley.

"THEY SAY"

DOCTOR FREY

DR. J. J. FREY
[illegible] State [illegible] of Agriculture

THE [illegible]

[illegible]

Good Legumes for California

By WILLIAM HARRISON

Yuba County Farm Adviser

THE legumes for orchard cover crops are divided into two types: those useful for planting during the fall months in order to plow them under in the spring, and those to be planted in spring or early summer to cover the soil and protect it from the sun. Legumes in turn to be plowed under in the fall.

It is not advisable to plant summer cover crops where the water supply is limited for to do so would be fatal to the well being of the fruit trees. In order to try out new varieties, my practice has been, when testing a new variety, to plant a few seeds of other kinds with it, in order to secure data regarding their suitability or adaptation for that soil type and locality.

Inoculation is an important matter and must not be neglected. Even with inoculation I frequently find legumes do much better the second season than the first, therefore, if the first crop does not come up to your expectations give it a second trial.

As the same kind of bacteria will not do for all varieties of legumes, care must be exercised to secure the right type. My practice has been to secure a small amount of soil from a field where either of the legumes grouped together have recently been grown, mix it with the seed and sow together.

Legumes which it is believed utilize the same bacteria are as follows: Alfalfa and hubam, red clover and alsike, soy beans, beans and cow peas; vetch beans and horse beans.

All the vetches work together. The lupines and burr clover, being natives, are already provided for by nature.

While I have named a few of the legumes I have grown successfully in Yuba County, there are many others which possess great merit and may later on be found to do better under given conditions than those mentioned, but till their suitability has been demonstrated, I prefer to confine my testing work to those of proved value here.

The prices quoted are taken from various sources and most probably will be considerably modified if quotations are requested for bulk deliveries.

GOOD WINTER LEGUMES

The following are classified as annual winter legumes:

Bitter clover and melilotis indica, adapted to alluvial soil, require twenty pounds seed per acre at 8 cents per pound. On some soils it is difficult to secure a stand at first. Sometimes the addition of a little manure applied with seed will help, superphosphate also is useful.

Burr clover is grown on all soil types. Sow twenty-five pounds seed per acre at 20 cents.

Horse beans, vicia faba, suitable for heavy soils. One hundred pounds seed per acre, at 20 cents, is needed. A valuable legume for cold, wet districts, but owing to cost of the very large seeds is likely to be superseded by vicia faba minor.

Tick beans, or vicia faba minor, for heavy soils, seventy-five pounds per acre, at 15 cents, is required. Same as vicia faba, but has small seeds and as soon as seed is available in quantity will supersede it for cover crop purposes.

HAIRY VETCH VALUABLE

Hairy vetch, suitable for average orchard soil, twenty-five pounds per acre at 15 to 25 cents. In Yuba County this variety has been found best for the mountain districts, as it is most resistant to frost.

Purple vetch, thirty pounds per acre at 9 to 10 cents. This variety gives the greatest tonnage per acre of all the vetches tried to date in Yuba County and stands the heat of the valley.

Oregon or common vetch, thirty-five pounds per acre at 5 to 6 cents. A useful variety for either feed or fertilizer, but does best in cool, damp weather. With increasing heat it shrivels up or is injured by aphis.

Lupine for average orchard soil, thirty-five pounds per acre. A native legume of great merit, which should be more largely used and local supplies of seed developed.

All of the above are seeded from September to November and plowed under from March to April.

Canada field peas are adapted to average orchard soils. Sown at the rate of seventy-five to one hundred pounds per acre, the seed costing around 10 cents per pound. They may be sown from September to January and turned under from March to May. This pea can be planted later than any of the above, but it has no other advantage.

HUBAM MONEYMAKER

Hubam is specially adapted to alluvial banks of creeks or sloughs; sow twenty pounds of seed, which costs 20 or 25 cents per pound. It is sown in spring or fall and may be plowed under whenever large enough. It is also useful for feeding purposes. A useful legume for wet soils. Has thick, strong roots, which strike deep down. This variety has special merit as a money producer.

The varieties of cow peas tested include Kanaka, Brabham and Whippoorwill. Adapted to any deep, well-drained, heavy soil. Sow fifty pounds per acre. Price, 20 to 25 cents. This crop, with the two following, are sown from May to July and plowed under in the fall, hence are classed as summer cover crops.

The cow peas all make heavy foliage, but Whippoorwill is the heaviest. Brabham is reported to be resistant to nematodes.

MUNG BEAN COMING LEGUME

Mung beans grow well on any deep, well-drained, heavy soil. Sow thirty-five pounds per acre. This is a recent importation and seed is scarce, but, judging by an experience in Yuba County, it will supersede all other summer legumes.

Soy beans thrive on the same type of soil. Seed required is about fifty pounds at 20 to 25 cents. Very similar in growth to cow peas, but hardier.

Three biennial cover crops have been proved valuable. These are all seeded from October to November and from February to March, at the rate of twenty pounds per acre.

White sweet clover, melilotis alba is a useful legume for wet soils. It has thick, thong-like roots, which strike deep down. Will grow where alfalfa will not thrive.

Red clover is very suitable for red soils, where lime loving legumes will not grow satisfactorily.

Alsike clover is also very suitable for red soils and will thrive on wet, cold soils better than any of the other clovers.

It should be remembered that these tests were all made in Yuba County, and might not apply where conditions are different.

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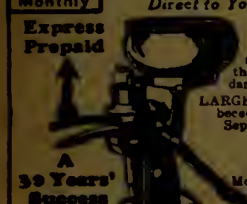

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No. 2	350 lbs.	$45.00	$5.00	$5.00 for 8 Months
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Dept. 10 Louisville, Ky.

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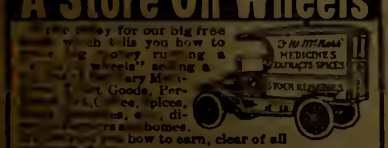

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Costs Less Butter. And finally, you will be surprised to learn that even with its many improvements and refinements, and the fact that it has 10 per cent more capacity, this new De Laval can be purchased for approximately 20 per cent less butter than was required for the same size machine 10 years ago.

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De Laval Milker. Also ask about the De Laval Milker, which soon pays for itself with a herd of 10 or more cows, and is giving wonderful satisfaction to thousands of users.

SOLD ON EASY TERMS OR INSTALLMENTS

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Send Separator ☐ Milker ☐ catalog (check which)

Name.....

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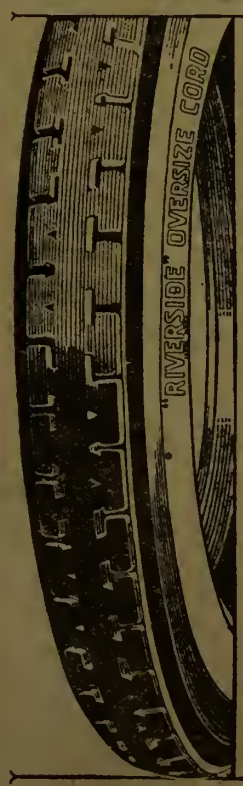
No. Cows.....

10,000 miles guaranteed and yet you save 1/3

Riverside Oversize Cord Tires



Riverside Oversize Cord Tires are guaranteed for 10,000 miles and in actual performance give up to 18,000 miles. Can any other tire do more?

So why not save one-third and use Riverside Cords? What more will any other tire do? Then why pay more?

And this 10,000 miles service is backed by a guarantee that has stood for fifty-one years. Does any other tire carry a better guarantee?

Quality is built into Riverside Cords

This guaranteed mileage is built into Ward's Riverside Cords. High treads, thicker and stronger, of tough, live rubber.

This exceptional quality of Ward's tires alone has made us the *largest retailers of tires in the country*. The tires themselves have convinced thousands that Riverside Cords are best.

"I have used Riverside Tires for the past four years. I have never had to send a tire back for adjustment. I have tried several different highly advertised makes alongside of Riversides and have not found one superior." Walter M. Schworm, Nessan City, Mich.

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Send them back if you do not find them the equal of any first-quality oversize cord made. We will refund your money.

These prices buy 10,000 miles of service—and more.

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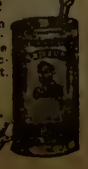

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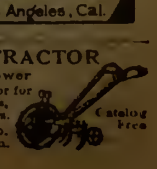

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Double *the* Net Dairy Profit!

— and stop dreading cow diseases, at one stroke —

One cent a day per cow is the average cost of using Kow-Kare as a preventive of disease and aid to increased milk yield. Most dairymen feed a tablespoonful twice a day one week out of each month. Fed two weeks before and two weeks after calving, Kow-Kare strengthens the cow over this critical period.

The best dairy authorities say that, on the average, an increase in milk yield of only 10% will double the net profit. This is a goal so moderate that it can be attained in almost every dairy.

Cows are pretty hardy creatures, but their genital and digestive organs—always hard worked in the function of milk making—are prone to break down. The milk-yield at once suffers.

These milk-making functions of nearly every cow, need frequent aid to keep them toned up to top-notch production, and to ward off disease. Kow-Kare accomplishes just this purpose. Acts directly on the organs of production. Thus strengthened, you need have little fear of such cow diseases as Barrenness, Abortion, Retained Afterbirth, Scours, Bunches, Milk Fever, Lost Appetite.

The milk-flow, too, is surprisingly increased by the general conditioning action of Kow-Kare. A cow may have no sign of disease, yet show a substantial increase in yield when Kow-Kare is fed moderately.

Start now to get 10% more milk from your cows. Our free book, "The Home Cow Doctor" tells how to use Kow-Kare successfully. Write for your copy.

Feed dealers, general stores and druggists sell Kow-Kare; $1.25 and 65c sizes. If your dealer is not supplied, we will mail postpaid upon receipt of remittance.

DAIRY ASSOCIATION CO., Inc., Lyndonville, Vt.

Makers also of Bag Balm, Grange Garget Remedy, Horse Comfort and American Horse Tonic.

Have a **KOW-KARE** *week each month*

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GIVEN DAINTY VANITY CASE beautifully decorated. Contains mirror, puff, spill-proof powder case. Sent without charge, postpaid—

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Tile Draining the Septic Tank

Cheap and Sanitary Method of Disposing of House Sewage on the Farm

By J. P. FAIRBANK

Extension Specialist in Agricultural Engineering.

"HOW is your septic tank working?" was asked of a Sacramento Valley farmer by a representative of the Extension Service.

"Fine; but I've not had time to bore the well to take care of the discharge," he replied.

"How do you take care of it now?"

"Run it into a ditch, but it smells bad."

It certainly did. There was the open ditch half full of stagnant water, with no chance for it to seep away, because of the nature of the soil. The flies swarmed around it, like bees around a hive. The farmer's children were playing within a few feet and not over three rods from the house.

The septic tank is the modern and sanitary means of sewage disposal for the home not served by a municipal sewer system. The common privy and the cesspool, however, could not have been more objectionable than the method used, although temporary, on this farm.

The septic tank was doing its work—liquifying the solids. Its discharge or effluent was normal, an almost clear liquid, but having an offensive odor and being dangerous to health.

"How do you propose to care for this discharge?" the farmer was asked.

"I was going to hire the well driller to bore a twelve-inch hole down about twenty feet and run into it the effluent. We strike sand or gravel at that depth."

"That may work all right, but remember, your well is close at hand and some of the three barrels of liquid sewage you run into the hole each day might get into the well.

"Such a hole would be practically a cesspool with all its danger, except it would not clog up quickly, because no solids would reach it. You might have no trouble, but it doesn't pay to take such chances."

"But there is no stream near here into which I can dump the stuff," protested the farmer.

"That also would be a questionable method; the discharge might not injure you, but there is the possibility of others along the stream below your farm having their water supply contaminated by your sewage. Even if such stream pollution were not against the law, it is not a desirable thing to do."

"Then what would you recommend?"

"A drainage system which allows this liquid to be absorbed by the top layer of soil. Run the effluent through a line of drain tile with open joints. The liquid will soak out into the soil where it will be acted upon or purified by what is called 'aerobic bacteria.' These are little organisms which exist in porous, aerated soil."

"How deep should this tile be placed?"

"That depends upon soil and surface water conditions. Usually, deep enough so the tile will not be disturbed by common tillage tools. In some instances, where the water table at times of the year comes nearly to the top of the ground, the tile is laid on the surface and dirt mounded over it."

"What kind of tile would you advise?"

"Common four to six-inch clay or cement drain tile, which ordinarily comes in one-foot lengths. Some prefer the half-tile in the heavier soils. The effluent is run from the tank to the drain tile by sewer pipe with cemented bell joints."

"What slope should the drain tile be given?"

"That depends on the type of soil. From one inch in a hundred feet for a very 'tight' soil to one inch in ten feet for a sandy one."

"How much tile should be used?"

"That depends on the kind of soil and on the number of persons using the system. Sixty to 100 feet in sandy soil is usually enough for the average family, but in a heavy, clay soil it may be necessary to use as much as 300 feet in lines about 100 feet in length.

"The ideal installation would be to have just enough tile laid to such a slope that a small amount of the liquid would come through to the end of the drain. In case of doubt we suggest a medium amount of tile, considering conditions, be laid. After it has been in use a few weeks, dig a sump at the end of the tile and see if much water reaches it. If so, then extend the system."

"In this soil of mine there is a sort of 'hard pan' down about eighteen inches that the water does not go through. What can I do with that?"

"If possible, cut through the layer or strata along the line of the ditch. Run a subsoiler along for a distance. Dig the ditch quite deep and fill it up to the proper level for the tile with gravel. Lay the tile, then cover it with a few inches of gravel and finish filling the ditch with dirt."

"What will this drainage system cost me?"

"Besides your labor, about 10 cents a foot for the tile. In addition, for your soil here, a few yards of gravel. This may be creek or river gravel too dirty to use for concrete work."

"Can I grow crops around this drainage system?"

"Certainly; it acts as a sort of subirrigation system. We do not recommend plants that send down a mat of fine roots that would plug the tile nor vegetables that are eaten raw. There is a chance that some germs might get into the skins of such foods. There is no danger of fruits or vegetables being affected by drawing poisons or disease germs up through their root system."

Assorted Tree Fruits for Butte County

AN ideal population for country district will be secured when there are numerous small farms owned by families who can do most of their own work and who have work to do and something to sell at almost all times.

A policy to bring this about is favored by Fred Cornehl, president of the Butte County Farm Bureau, on whose ranch is a variety of fruits that shows what could be done along this line.

His main crop is olives, with almonds and oranges grown on the side. The ranch is in the rolling foothills, where all three of these fruits and several others are regular commercial crops. He also has a number of unusual, but very promising kinds of fruits.

In his garden are two avocado trees which bear heavily and have never been hurt by the cold, also a Guatamalan seedling which grows vigorously and has lost its leaves by freezing. Other nearby ranchers have equal success with the avocado, which is very promising commercially.

In certain parts of the State persimmons are experiencing a boom that seems merited. One dooryard tree of the Hachiya, leading commercial variety, was this winter loaded almost to the breaking point with the most magnificent persimmons the writer has seen. Last year 215 pounds of commercial fruit was picked from this tree.

Another dooryard persimmon tree had a fair crop of small-sized fruit, which was wonderfully delicious. It is a sweet variety that can be eaten when firm, like an apple. Plant breeders ought to develop size in this persimmon. Hundreds of carloads could be sold every year if a variety like this approaching the Hachiya in appearance could be grown.

Of two fejoa bushes, one has never produced a crop. The other the past season produced fifty pounds of fruits, each as l[illegible] as a pullet [illegible]. The[illegible] mad[illegible] t[illegible] red jelly.

Another neglected fruit in which Cornehl has great faith is the Champaigne loquat. Ordinary loquat seedlings are worthless commercially, but this variety is as big as an Hungarian prune, delicious in flavor and ripens in May, just when the market wants that type of fruit.

A small amount of fruit is hard to market to advantage. The ideal plan would be to have a large n[illegible] of small, diversified farms and a community packing house. With each family sending in a small amount of various kinds of fruit, carloads and mixed cars could be sent out nearly all the year to a regular trade and prices should be far better than when only one crop is sold on a general market. Meanwhile, the labor situation would be excellent.

Cornehl can have fresh fruit from his ranch every day in the year. Oranges, for example, last all winter. St. Michael's sweet, a small, fine flavored variety—no longer grown commercially—lasts until July. Long before that time many deciduous fruits ar[illegible]

—T. F.

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(18 years largest in the world)

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Montgomery Ward & Co. sells *only* the kind of goods that will give you satisfaction in actual service—*goods that stand inspection and use.*

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FOR MEN: The man or boy can spend hours full of interest, in merely studying this book. There is everything a man or boy needs or wears. Suits, hats, furnishings, shoes. Automobile accessories, tires, tubes, batteries, all kinds of tools, sporting goods, everything a man buys. *And the saving offered may just as well be yours.*

FOR THE HOME: Beauty in home furnishing is largely a matter of taste. Therefore, everything we offer for the home is selected by experts in home decoration, by those skilled in knowing how to beautify and modernize the home. This big Catalogue is complete with all home needs, with everything new. And the prices always offer a saving.

FOR THE FARM: For Fifty-one years we have been friends of the American Farmer. And he has been our friend. We are continuing our help by working harder than ever before to make his savings greater and to make his money go farther. This Catalogue offers almost everything for the farm—from poultry and stock supplies to fencing, hardware, and tillage tools.

Write for Your Copy of This Big Catalogue

This page is printed merely to tell you the story of this new Catalogue. To tell you how full of interest it is for you, how large your savings can be—and to tell you that one copy of this complete Spring and Summer Catalogue is Yours—FREE.

This coupon will bring you your free copy. Or you can write us a postcard. Only—lest you forget—*before you turn this page*, send for your copy of this new Catalogue.

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70 cents a line, or 60 cents a line for four or more consecutive issues (average 7 words). For white space, cuts or display type, cost is computed according to total space occupied by advertisement.

Advertisements must reach us 15 days before date of publication.

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CERTIFIED White Leghorn quality chicks from selected free-range, heavy-laying, utility hens mated to double pedigree cockerels with authentic trapnest records. Our breeding flocks are inspected and accredited by the Sonoma County Farm Bureau. Safe arrival and full count of live, vigorous chicks guaranteed. Accredited "AA" grade chicks at single "A" prices. Send for catalogue and attractive spring prices. MUST HATCH INCUBATOR CO., INC., the World's Largest Electric Hatchery, 432 7th St., Petaluma, Cal.

WE'RE BOOKING CHICKS for most winter and spring weeks from some of world's highest egg-producing Leghorns, Anconas, Reds, Minorcas, Rocks, Brahmas, Wyandottes, Andalusians, Orpingtons; reasonable. Reduced if booked ahead. Capacity, 300,000. "Never saw such size, vigor, rapid growth, egg-yield!" PROFITABLE POULTRY, 13 N. Fair Oaks, Pasadena. Mail only.

WEBB'S WHITE LEGHORN CHICKS—You will get plenty of eggs if your chicks come from WEBB'S CACKLE FARM. 2500 choice selected hens mated with cockerels from trapnested hens with records of 200 and better. 12 years SANTA CRUZ largest poultry breeder. Prices 15c up to Feb. 1st, 12½c from Feb. 1st to March 15th, and 10c thereafter. A. M. WEBB, 227 Parkway, Santa Cruz, Calif.

BABY CHICKS—Only the better grade at popular prices—Hanson White Leghorns, Brown and Buff Leghorns, Reds, Barred Rocks, Anconas, Black Minorcas, Blue Andalusians, White Wyandotte and Buff Orpingtons. Order early. Free folder. McDONALD POULTRY RANCH AND HATCHERY, Route 1, Box 246, San Jose, Calif.

NINE-TENTHS of the time. This system has made the raising of chicks the easiest branch of the poultry industry and is becoming popular at wild fire speed among all wide awake poultrymen. Write for free folder. STEVE'S BROILER RAISING SERVICE, 627 CHRONICLE BLDG., SAN FRANCISCO, CALIFORNIA.

WHITE LEGHORN BABY CHIX of unusual value, from especially well culled hens mated with full pedigreed males. Prices per 100: February, $15, March, $14, April, $12.50, May and June, $12. 100% live, strong chix guaranteed. We are accredited by the Sonoma County Farm Bureau. THE PIONEER HATCHERY, 476 Sixth St., Petaluma, Calif.

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CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

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To Fix Avocado Standards

By J. ELIOT COIT

THOSE who are in a position to know claim that no fruit is better than a good avocado. On the other hand, few things are worse than a bad avocado. The fine flavor of good fruit owes its quality to the high oil and protein content. This is developed only as the fruit is matured on the tree.

J. ELIOT COIT

Avocados do not ripen on the tree. Many varieties will hang for several months after maturity. Whenever the fruit is picked it immediately begins the ripening process, which requires from three to thirty days, depending on temperature and other conditions. When ripe and ready to eat the flesh is soft and buttery, after which it will not keep very many days, although varieties differ in respect to their keeping qualities.

When an avocado is picked before it is mature it will not ripen, but becomes flaccid and wilted, with flesh of a watery, insipid, or disagreeable taste. In very immature fruit the flesh assumes the consistency of soft rubber and then decays.

There is no question but that the avocado industry of California has a large and important future. Its development, however, will be somewhat retarded until the consuming public can be educated in the ways of handling and ripening the fruit. It is also of the highest importance that some standard of maturity be adopted to judge fruit offered for sale, otherwise some short-sighted growers and dealers may not withstand the temptation to market large quantities of immature windfall fruit, to the great detriment of consumer demand and damage to the industry.

The responsibility for encouraging studies on which maturity standards may be based lies with the California Avocado Association, which is most concerned with the future good of the industry.

With this end in view there was held in Fullerton last November a conference which was attended by members of the University staff, U. S. and State Departments of Agriculture, market men and others interested. The object of the meeting was to devise ways and means of arriving at a fair and proper maturity standard for avocados.

Stanley Rogers of the State Department of Agriculture explained that in order to enforce any standards there must be figures or definitions which are explicit and do not depend upon opinion.

It was brought out in the discussion that inasmuch as the most logical standard would probably be one based on oil content, and as the oil content on maturity differs so widely between varieties, that it might be advisable to limit the application of standards to a certain few commercial varieties which are produced in largest amounts.

It is not surprising that some opposition to any standard developed. There has always been opposition on the part of market interests to any sort of standard for food products. They believe in the principle of Caveat Emptor—"Let the Buyer Beware"—and that if an article can be sold, that is "prima facie" evidence that it is salable.

While this principle may suit market men whose only interest is in the daily turnover, it is vigorously objected to by association members, who believe that if we are to build up a great avocado industry we must look earnestly after the interest and satisfaction of the ultimate consumer.

Haltingly but surely the consumer's interest is manifesting itself in standardization of many food products. We have the oil percentage standards for ripe olives, the moisture standard for butter, fat standard for milk, cheese and ice cream; sugar standard for oranges, cantaloupes and grapes; acid standard for vinegar, and so on down the list.

In every instance there was an uproar of opposition from dealers, who claimed it could not be done; that it would not work; yet the standardization of every one of these food products has resulted in an increased demand and wider distribution.

Avocados will prove no exception to the rule. In fact, the avocado is more in need of standardization than any other fruit product. The association is working toward this end. The program is to press an amendment to the State standardization law adding the avocado to the list of fruits covered by standardization and then to work with the chemists of the U. S. Department of Agriculture and State University until some definite oil-in-flesh standard is adopted for the most important commercial varieties.

Plant Spinks Avocado

IF you have room for only one avocado tree, better plant a Spinks. This variety will bear well without other varieties near by for cross pollination. It also begins to fruit the third year when the tree makes a good growth. The fruit is large, black, thick skinned, of good quality, and ripens from March to June.—J. E. COIT.

Walnut Problems

(Continued from Page 24)

Growers' Association was organized and put in its present good working condition. This year we received 22 cents a pound for first-class soft shell nuts and 15 cents for No. 2's. Budded nuts brought 24 cents, and extra fancy stock up to 30 cents.

"Walnut producers in the Rivera district demand and obtain association prices for their nuts, although they do not belong to the organization. They receive the benefit of the immense sums of money which the Growers expend for advertising, yet do not share the expense. Other independent nut growers pursue the same selfish, short-sighted policy.

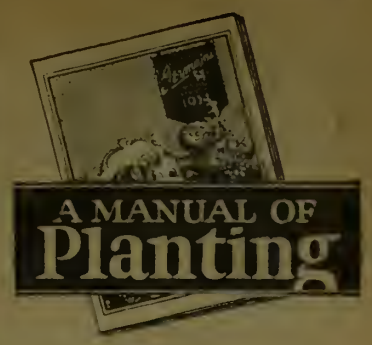
"In order to protect our product, we offered $10,000 for a practical machine for stamping our brand on each nut but a device was never perfected."

BUILDERS DESTROY ORCHARDS

[illegible] to coddling moths, real estate agents are giving Whittier nut growers the greatest trouble at the present time. It is estimated that within 12 months the acreage of walnut orchards in this section will have been subdivided for residential purposes.

Cutting down trees to make way for [illegible] and streets is not considered the greatest feature of this work, but [illegible] of remaining trees, which almost invariably follows. Purchasers of [illegible] homes seldom cultivate, prune and spray their trees properly, resulting in the multiplication of orchard pests and diseases.

[illegible] is making a desperate effort [illegible] home place of 60 [illegible] subdividers have offered [illegible]. Although sentiment [illegible] the basic motive for wishing to [illegible] property yields up to [illegible] were secured during the [illegible] '19. A 10-acre tract [illegible] Gabriel river which was [illegible] for $3600 [illegible] platted to walnuts, [illegible]



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Second, the large group of people with modest incomes who have the false impression that so good a car as Chevrolet is beyond their means.

They do not realize that due to engineering excellence and full modern equipment, Chevrolet operating and maintenance costs average so low that during the life of the car, it delivers modern, comfortable, fast transportation at the lowest cost per mile, *including the purchase price.*

The tremendous growth of our business during the last two years has been due to the shifting of thousands from this group to the first group.

Third, the smaller but very important group of people of ample means, able to buy the highest priced cars, only a small percentage of whom as yet realize that Chevrolet combines quality features of much higher priced cars with such operating economy that as an extra car it virtually costs them nothing, due to the reduction in their transportation expenses effected by it.

This message, then, is addressed to all in the second and third groups. We respectfully suggest consideration, investigation and comparison of Chevrolet with any other car at any price. The result will be to our mutual benefit.

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Prices f. o. b. Flint, Michigan

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Superior Touring	495	Superior Commercial Chassis	395
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XVI—GORDON H. TRUE

Professor of Animal Husbandry, University Farm, Davis

SINCE Professor True has been at the head of the Division of Animal Husbandry of the University of California his department has made wonderful progress. The university has developed its herds of dairy cattle, beef cattle, sheep, and swine until they have attracted the interest of the whole country.

A senior two-year-old Holstein cow, California Pietertje Bloom Mead, has made a record of 19,985 pounds of milk and 722 pounds of butter fat, the highest record for her age of any cow owned by an agricultural college in the country. She also has a record of 28,236 pounds of milk and 1004 pounds butter fat as a junior four-year-old, which is the highest record for her age among agricultural colleges, the State record for her age, and the third highest record for her age for the Holstein breed.

Professor True has directed the activities of the dairy herd, during which time the so-called Agnes family has

been developed. Agnes Colantha, dam of the Agnes family, has a total production record to December 1, 1923, of 102,264 pounds of milk and 3472 pounds of butter fat.

Three of her daughters, which are full sisters, have completed records as follows: California Agnes Colantha, 26,205 pounds of milk, 982 pounds of butter fat, fourth highest record for mature cows owned by agricultural colleges, California Colantha Agnes, 21,665 pounds of milk, 725 pounds of butter fat as a junior three year-old, highest record for her age for agricultural colleges; California Juliana Agnes, 17,044 pounds of milk and 637 pounds of butter fat as a junior two-year-old, third highest record for her age among agricultural colleges.

GREAT INTERNATIONAL RECORD

Perhaps the most notable showings made by the Division of Animal Husbandry under Professor True's direction have been the winnings at the International Livestock Show at Chicago. The University made their initial showing in 1916, winning Grand Champion and Reserve Grand Champion steers.

In 1917 they did not show, but in 1918 they had the Champion Angus steer and Champion Shorthorn steer; in 1919, Champion Angus steer and best pen of five steers, in 1921, Grand Champion steer, Grand Champion herd of steers and best five steers; in 1922, Grand Champion herd of steers and a number of first prizes; in 1923, only fat wethers were shown, but the University had the Grand Champion wether of the show.

In each of these years a very good sheep showing was made, during which time the university had the Reserve Grand Champion twice on fat wethers. In the Clay Robinson special, which is competed for by colleges, the University of California has won 50 per cent of the money offered during a period of five years. Exceptionally good showings have been made at the Pacific International Livestock show at Portland where the University has had the Grand Champion steer twice and the Grand Champion wether three times.

Professor True is largely responsible for the showing of the Animal Husbandry Division. By developing a spirit of loyalty in the Division, he has had the best of support and co-operation from all members of the staff.

NATIVE OF WISCONSIN

Gordon Haines True was born in Barahoo, Wisconsin, December 14, 1868. He received his degree of Bachelor of Science from the University of Wisconsin in 1894. On October 3, 1904, he married Elizabeth Stubbs of Reno, Nevada.

Professor True was instructor in dairy husbandry at the Michigan Agricultural College from 1894 to 1898. He was Professor of Animal Husbandry at the University of Arizona from 1898 to 1902. He was Professor of Agriculture and Animal Husbandry at the University of Nevada from 1902 to 1913, and was also director of the Agricultural Experiment Station at the University of Nevada 1912-13. He was a member of the Nevada State Board of Agriculture 1912-13; State Quarantine Officer of Nevada in 1913. Since July 1, 1913, he has been Professor of Animal Husbandry at the University of California.

He is a member of the American Genetic Association, American Society of University Professors, Fellow A. A. A. S., member of Alpha Zeta, Phi Kappa Phi, and Delta Upsilon. He is a member of the American Society of Animal Production, and was chairman of the Livestock Committee of the California Food Administration during the war. He was recently honored by having his portrait hung in the Saddle and Sirloin Club in Chicago, a distinction accorded only to the outstanding men in the livestock world.

Battling Bunt With Copper Carbonate

TESTED side by side with the standard liquid treatments, copper carbonate dust mixed with seed wheat at the rate of two ounces per bushel has been found to control seed-borne bunt without the injury to seed germs, so pronounced with the liquid fungicides.

Not only does the copper carbonate dust in no way injure the seed, it even appears in many instances to cause a decided stimulation, resulting in early vigor and better germination.

Many farmers report that more than 25 per cent less dust-treated seed must be sown as compared with the seed treated by the liquid methods, otherwise the stand may be too thick.

This item alone should result in saving more than 2,225,000 bushels of seed wheat in the Pacific Coast States alone.

The dust process, moreover has been found to be well adapted to all North America where bunt is found in wheat. The new process is especially welcomed by farmers because the seed may be dusted long before the seeding season arrives, labor thus being saved when it is most needed.

Since the dusting process lends itself readily to large-scale machine methods, a number of warehouses have installed equipment to treat seed wholesale. This is true of the Tulare Lake region.

A small wooden machine and a large automatic one are described in a bulletin recently issued by the University of California. The success of the dust process has been so thoroughly demonstrated during the past three years in Washington and Oregon, as well as in California, through the county farm advisers and others, that many inventors have prepared and placed other small dusting machines on the market.

Three years ago, when the copper carbonate dust method was first demonstrated on farms, very little of the chemical was available. A large quantity, generally poor in quality, was imported from abroad.

The success of the dust method was so convincing, however, that little trouble was experienced in inducing three or four chemical concerns to erect factories for the manufacture of copper carbonate dust in the region of San Francisco Bay.

All of these firms have accepted the high standard of both physical and chemical quality required for the best control of the bunt pest. So generally has the new dust process been accepted by farmers that the old liquid methods of seed-wheat treatment have almost disappeared in the large wheat growing areas of the State.

The change from the old, tedious, expensive and injurious liquid methods is so abrupt as to be considered revolutionary, but all who have employed it unanimously agree that the copper carbonate dust method for controlling seed-borne bunt has come to stay.

Testing Fertilizers

(Continued from Page 3)

are past fifteen years of age—show great vigor and a far more healthy condition than others not so fertilized, and produce each year a good crop of high quality peaches. On the other hand, in similar orchards, where no cover crop has been used, the trees are in a much poorer state of production and the quality of fruit is inferior.

SUMMARY OF SITUATION

The fertilizer situation in this State may be summarized as follows.

1. California farmers spend vast sums of money annually for fertilizers and soil amendments without securing definite results.

2. Commercial fertilizers as applied to fig production need further investigation.

3. Wide range of California soils and climatic differences make the problem of fertilization complex.

4. Commercial fertilizers rich in available nitrogen seem to give most promise under valley conditions.

5. Organic fertilizers, such as cover crops and manures, will give best results in the long run, with respect to health and vigor of orchard trees and physical condition of the soil.

6. Best results from soil amendments and commercial fertilizers will be from their use in connection with the growing of cover crops, or with barnyard manure.

7. The growing of cover crops is the most economic and efficient way of orchard fertilization.

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Personalities and Practical Pointers

Berries Profitable in Humboldt County

THE illustration below is from a photograph taken at the ranch of Allard Brothers, Humboldt County, horticulturists, who are among the most successful berry growers of California, according to J. W. Logan, farm adviser. They began developing their place at Freshwater three years ago and now have 10 acres in cultivation.

Six acres are devoted to strawberries, mostly McKinley and Improved Wilson. The Trebla, popular variety originated by Ettersburg, the "Burbank of Humboldt," is not considered as good for table use as the kinds mentioned, because it is said to turn dark soon after picking.

Strawberries are planted in rows three feet apart, the plants being 18 inches apart in the rows. No irrigation is needed, the ground being rich, low lying creek bottom, only a few feet above the nearby ocean. All berries are cleanly cultivated with a garden tractor, which has been found a great convenience and much less expensive to keep and operate than either a team or full sized tractor.

Picking costs 1½ cents per basket. Berries are packed in crates in a shed near the center of the field. Most of them are sold to three dealers at Eureka, six miles distant.

Prices averaged nine cents per 12-ounce basket the past year. During the berry season 2000 baskets per day are gathered. As high as 8000 baskets per acre have been produced.

An acre of Great American raspberries has been found profitable. This is a large, dark-red berry, much superior to the old Cuthbert. Three acres is devoted to Loganberries and blackberries, which sell for 8 cents per basket. Raspberries bring 10 cents per half-pound basket.

The Allard berry farm extends into the timbered foothills north of the fields of fruiting vines. The hill land was logged off during the Civil War, 60 years ago, and since has been reforested by nature with a fine growth of young fir trees.—O. H. B.

Says Sacramento Valley Beats Dakota

This Middle-Western Farmer Is Well Pleased With His California Dairy and Alfalfa Ranch

HOW to get the extensive Middle-Western farmer to come to California and engage in intensive agriculture is one of the big problems of this State. The experience of A. G. La Clair, who recently removed from Armour, South Dakota, to California is an illuminating example of one who made this change with profit to all concerned.

La Clair spent some months inspecting various agricultural districts of the Golden State before deciding where to locate. He finally bought 30 acres of subirrigated Sacramento Valley land, close to the Capital City. The place cost $20,400, but was considered well worth the money, having 24 acres in alfalfa, a large, modern residence and other valuable improvements. Not every farmer who comes from a cheap land district can see $600 of value in an acre of California land.

The sixth crop of alfalfa on unirrigated land was cut by La Clair the last week of October. The total yield was estimated at eight tons per acre. Two crops were sold at a satisfactory price and the remainder stored for feeding a team and dairy cows.

Six grade cows produce $20 worth of cream per week. By increasing the number of milkers to 20 a very comfortable income can be obtained, La Clair believes. If the rest of the cows do as well as the six the cream sales will total $10 per day. The expense for milk feed can be met by other small sources of income, leaving a net yearly income of approximately $3000.

The excellent cash market afforded by the city of Sacramento and the immense amount of fine feed which can be grown upon a small amount of land, together with the mild climate, are two conditions which looked good to the former Dakota wheat grower. He used to farm three-quarters of a section of land, but now extracts more money from 30 acres in the Sacramento Valley.

Proximity to a large city has other valuable advantages besides furnishing a good cash market for farm produce, believes La Clair. He has five children, two of whom attend high school in the Capital City. During the past summer they worked in a canning factory, earning big wages. City church and entertainment facilities are considered valuable, in addition to those mentioned.

La Clair's farm is situated on land which was reclaimed by the gigantic Natomas project, which entailed the building of huge levees to keep out the flood waters of the Sacramento River. These dikes cost over $100 per rod, the total amount expended in their construction amounting to $3,500,000. Moisture and fertility conditions are first-class, furnishing ideal conditions for intensive farming.

View of the pleasing farmstead that lured A. G. La Clair from South Dakota to sunny Sacramento Valley. Left.—Cutting sixth crop of alfalfa.

Meet Our New Dean

AFTER unremitting search during many months for the one right man, the President and Board of Regents of the University of California invited Dr. Elmer Drew Merrill, director of the Bureau of Science at Manila, to take the Deanship of the College of Agriculture made vacant last July by the resignation of Dr. Thomas Forsyth Hunt.

Dr. Merrill has accepted, and was formally appointed at the January meeting of the Board of Regents held today in San Francisco.

IS NOTED SCIENTIST

Dr. Merrill for the past four years has served as director of the Government Bureau of Science in the Philippines, charged with the duty of administering all of the activities of the Philippine Government in scientific subjects—such as those pertaining to the Bureau of Chemistry, the Bureau of Standards and other Government departments established at Washington.

His scientific exertions in the Philippines, however, have covered all of the past twenty-two years, first in immediate connection with agriculture and then as Professor in the University of the Philippines.

As director of the Bureau of Science he continued his intimate relations with agriculture. Incidental to his official duties have been much travel and observations in the Dutch East Indies, in China, in Australia, in Europe. In 1920 he represented the Philippine Islands at the Pan-Pacific Congress of Science at Honolulu; and likewise at Sydney and Melbourne in 1923.

Recent honors are his election to the National Academy of Science, and to the Chapter of Phi Beta Kappa at his alma mater, the University of Maine, where he was graduated in 1898. Dr. Merrill has published 180 or more of technical and scientific articles.

Dr. Elmer Drew Merrill, Dean of College of Agriculture.

In the prime of life and after a score of years of scientific and executive achievements, Elmer Drew Merrill undertakes with the promise of great usefulness the administration of a university office second in importance only to that of the presidency.

He will have immediate responsibility for an agricultural institution of vast dimensions, with its headquarters at Berkeley, a large and flourishing branch at Davis, another such branch—the Graduate School of Tropical Agriculture—at Riverside, and thriving experiment stations in Fresno, Santa Clara, Imperial, and other counties.

MANY RESPONSIBILITIES

The personnel of the College of Agriculture staff includes 288 "Regents' appointees" and 75 or more of other employees. The Extension Division alone of the College, is manned by 125 persons, including more than a hundred under the heading of farm advisers and home demonstration agents in more than forty of California's fifty-seven counties.

Undergraduate students pursuing University work in the College of Agriculture number about 450, and graduate students about 75, drawn from all parts of the world as well as from the United States. The College of Agriculture expends annually a budget of more than $1,800,000, of which nearly one-tenth represents a grant from the Federal Government.

Such is the domain of which Dean Merrill will have immediate direction. It has grown mightily, the last twenty years, under the hand of Thomas Forsyth Hunt and his associates and the hand of his predecessor, the late Dean E. J. Wickson.

Dr. Merrill plans to establish a home for his family in Berkeley at an early date.

"Bringing Up" Youthful Trees

This device is used to cut the roots of trees in the nursery row. It is drawn by the truck shown at right of page.

A Visit to the California State Nursery

ALL but one of the accompanying views were taken at the State Nursery, situated upon the highway between Sacramento and Davis.

Here are grown many varieties of trees for community and roadside planting. Because of shortage of funds, however, it is now necessary to sell the trees at a nominal price, in order to make the nursery practically self-supporting.

The State Forestry Department cooperates with Government foresters in conservation work and all matters pertaining to the planting and protection of trees.

According to W. B. Greeley, Chief of the United States Forest Service, more than 75 per cent of the virgin timber supply in the East has been used, and in the Far West nearly 25 per cent already is gone.

The one thing EVERY reader can do to help the cause is to join the fire prevention campaign, and thus reduce the enormous annual loss resulting from forest conflagrations.

This old army truck, formerly used for controlling captive balloons, is employed at the State nursery to draw the root cutter shown at left of page. Note cable and drum.

Showing how young evergreens are packed for shipment. The roots are "balled" with earth and sewn with burlap. Tule rushes are used for wrapping bundles.

The photograph above was taken during national "Tree planting Week," so designated by the American Tree Association.

The posters were designed by school children. Various organizations throughont the country are fostering love of trees on the part of the rising generation Anyone who has planted trees and watched them develop knows the pleasure and satisfaction they give.

Left to right—G. O. Gillette, J. P. Yost, M. B. Pratt (State Forester) and R. M. Doney (in charge of nursery). This is tree-planting time in California, and they're all busy.

Nurseryman Doney (kneeling above) is holding a young tree which was treated with crude oil last fall in order to prevent damage by borers. A large block of trees so treated was uninjured.

ORCHARD and FARM

Pauline Gruhlke and her pet Karakul Lamb

FEBRUARY 17, 1924

Keeping Out of the Red by Using His Head

Puts Practical Ideas to Work

NOT that George Vogt of Merced County has missed his share of the recent trials familiar to all deciduous fruit growers. But he refuses to become discouraged by temporary difficulties, and meanwhile is building for the largest possible production of high quality peaches and grapes.

By ALBERT J. MASON

BY all means see George W. Vogt's place near Atwater," suggested Farm Adviser Quail when we invaded his Merced office with our usual demand for guidance. "That is just one of any number of interesting ranches near here, whose owners are achieving success. But Vogt, in co-operation with this office, has conducted some very interesting experiments and has achieved really remarkable results in renewing old trees, pruning, cover-cropping and control of disease.

Showing how trees are "banded" with white paint to indicate ditch lines and guide tractor driver when cultivating.

"George is just one of the many good fellows who are contributing to the upbuilding of agriculture in Merced County and with whom we are co-operating," the county agent continued. "He is a live wire with opinions of his own, but he is willing to submit his ideas to the final court of practical application."

George Vogt points out long spurs at top of former "invalid" tree described in article. He prunes according to individual requirements

And so we sped up the highway to the little town of Atwater, whence it is but a few blocks to the Vogt ranch.

Immediately we were impressed by the neatness of the place. Not a tool or implement did we see exposed to the weather. Every ladder and tray was stacked away under cover. One gains the impression that the owner is a little ahead, and not just behind, in his work. The orchards were conspicuous for their uniformity. Careful management was apparent to the most casual eye.

"And what is this tag?" we inquired, noting a large shipping label tied to one of the larger peach trees.

"That tree," replied the owner, "is one of my invalids. The tag bears its history, showing what was the matter with it and when it was treated. Every tree on this ranch has received individual inspection and has been pruned according to its requirements.

"You will note several extra long, single fruit spurs which I have allowed to develop in the top of this tree. That was because it had been stunted by previous short pruning and disease. I wanted to develop a new top, but at the same time I desired to get the maximum production of fruit. The effect of these long spurs will be to force the development of fruit wood below and I will have a much heavier yield than if by cutting back I had encouraged the growth of large numbers of smaller fruit spurs in the top.

"I am still working over sunburned and rotted limbs which resulted from short pruning before I acquired the ranch."

"But," we insisted, "You are not practicing what the University terms long pruning."

"No, this is modified long pruning—that is, modified according to the individual requirements of each tree. You can't formulate any rule for pruning or any other orchard operation that will apply to all orchards and all localities. But pruning is the one thing that can make or break the crop. If we cut off all the fruit wood, it's a cinch we won't have much fruit. I never did believe in short pruning, even when others were practicing it generally.

"If the lower part of my trees becomes so dense as to threaten 'choking,' it is easy then to thin out. And even if another main limb is needed for the framework of the tree, it is possible to grow one where desired and at the same time enjoy a profitable yield of fruit. In short, I prune long in order to get fruit and aim to shape my trees as they develop, rather than sacrificing fruit in early years in order to grow a framework that just suits me."

Vogt explained that this same tree as well as a distressingly large percentage throughout the orchards at one time had been very badly injured by the dread "Yellows."

"Some day," he hinted, "we may have some interesting information to give out on the control of this trouble. I am experimenting, in conjunction with the farm adviser's office, in the use of nitrate fertilizers to solve this pet problem of the peach producer. But any data we might give out now I fear would prove misleading and possibly cause other growers to damage their trees. Nitrates must be handled with extreme caution in a peach orchard."

We did not press this subject further, but we did observe that the Vogt orchards, once well-nigh ruined in parts by the "Yellows," now appear healthy and unusually clean!

REMARKABLE YIELDS CITED

We have covered, then, the first point emphasized by this grower in the production of heavy yields of high quality fruit—pruning. Before going further, let us inquire whether results have justified his methods.

"True," admitted our host, "some growers disagree with me and criticize my system, but I tell them the only justification I have for it is that I get the fruit." His freestones produced the past season within a fraction of 12 tons per acre of number one peaches! How's that?

The clings that are in bearing produced 11 tons of number ones per acre. Both varieties are about 12 years old. The yield per acre has been doubled since Vogt took over the orchard, and he has had the place only three years.

What, then, are the additional factors? One is thinning. "Few growers thin severely enough," says Vogt. "I thin a sample tree, taking off enough fruit to permit development of the amount I believe the tree will hold and then show this tree to my men as a sample to work by."

A third factor is cover-cropping. Vogt grows vetch in his orchards, plowing it under according to the season. This fall, owing to continued dry weather, the vetch got a poor start and therefore may be turned under later than usual. "But that, too, will depend on conditions. You can't lay down any set rules for any branch of this farming game," he repeated. "It's all a gamble anyway. The best we can do is to overlook nothing that may contribute to success and then vary our program according to the weather and market conditions."

Deep tillage is the rule rather than the exception on this ranch. The chisel follows the spring-tooth harrow.

The vineyards are irrigated by means of cement pipes. A flow of 1000 gallons per minute is divided into 100 streams.

In this statement, we have the crux of Vogt's progressive ideas. "Overlook nothing that may contribute to success." This means carrying on not one or two, but all orchard operations faithfully every year. It is the combination of all factors—doing the right thing at the right time every year—that brings home the money. To neglect any one may nullify the effects of previous work.

Spraying, then, is a third item. Vogt aims to keep (Continued on Page 9)

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
FEBRUARY 17, 1924

How About Our Agriculture Twenty Years Hence?

Is California Building Wisely for the Future? Can We Not Do So While Attacking Present Problems? What Has Been Done? What Can Be Done?

By THE EDITOR

COMPARTIVELY few persons realize what steps have been and are being taken by our State University and Agricultural Extension Service to provide for the needs of the State five, ten—yes, even twenty years hence.

We now make practical use of invaluable information accumulated through years of experimentation, the need for which was unapparent to many observers at the time the work was started.

As one example, our milk goat breeders have found the University able and willing to give them asistance in solving their many problems.

Yet Professor True began his work with goats, at the suggestion of former Dean Hunt, when there were but three or four breeders in the State. Dr. Hunt and his associates had the foresight to see what was coming.

In fact, Dr. Hunt is now engaged in making a study of conditions in representative counties of the State, one of his objects being to anticipate future problems with a view to making confidential reports to the Experiment Station, which will enable the officials to meet demands for information as they will arise in future.

DRAINAGE PROBLEM STUDIED

A month in Imperial County convinced Dr. Hunt that the drainage problem is far from being permanently solved and that despite all that has been and is being done toward anticipating possible evils, there is almost sure to be need of further work along this line. It is probable that more of his conclusions will be published at some future date.

He will study economic, marketing, production, transportaiton and social problems in at least five representative counties, including one in Southern California (besides Imperial, which is regarded as a "domain" in itself), one in San Joaquin Valley, one in the Sacramento Valley and two in the northern and eastern parts of the State.

Anticipating the development of the mountain districts of Eastern California, now sparsely settled, the University has had one man at work for nearly ten years on problems of range management.

Dr. P. B. Kennedy's studies of range grasses and forage crops some day will be of inestimable value in the economical and profitable use of our vast domain of mountain range lands.

Yet certain "hard-headed" business men, when informed of this proposed project many years ago, scoffed at the idea as visionary and impractical. "Better spend that same time and money on the valleys where there are so many immediate problems to be solved," they advised.

MUST LOOK AHEAD

But the University's answer was, "We must do both. The State is educating farmers of the future. We must also prepare to render the practical service they are sure to demand from us."

It is dangerous to call any one "visionary" who undertakes to predict what will take place in California within a decade! The world has seldom known an influx of people to any one section such as the present wave of [illegible] sweeping into the Golden State. The phenomenal growth of [illegible] Angeles is certain to be reflected in [illegible] agricultural development of the [illegible] country" for 300 miles north, [illegible] into Mexico, east into Nevada [illegible] southeast into New Mexico. [illegible] corresponding development of the [illegible] district means new opportunities [illegible] new problems for its surrounding territory.

[illegible] than thirty years ago some one had the temerity to suggest that the [illegible] production of about 10,000 cars [illegible] oranges might be increased to [illegible] This statement, published in [illegible] newspapers, brought a flood of [illegible] and letters of protest from [illegible] real estate men and "public [illegible] citizens.

[illegible] idea," they cried, "of making [illegible] reckless prediction. Nobody [illegible] to buy California citrus land [illegible] thought that there will be [illegible] production of citrus fruits!"

[illegible] the past fiscal year of the [illegible], 59,707 cars of oranges and lemons were shipped out of the State (according to figures furnished by the railroads) and the price was higher than it was at the time this prophet, who was "without honor in his own land," made his "careless" statement!

Yes, future problems must be considered! It is encouraging to note this tendency developing also among local public bodies and agricultural officials.

IMPERIAL'S GOOD WORK

Probably no one in the extension service has sensed this need more clearly than Farm Adviser Garthwaite of Imperial County. His report at the last Farm Advisers' conference in Berkeley dealt largely with the future needs of his territory. But this earnest and far-seeing young chap went even farther than the State officials, for he outlined a program to provide for the needs of ten and even thirty years hence!

"The type of farming that has been carried on in the Imperial Valley and is still being carried on to a great extent cannot be called farming; it is exploitation," said Garthwaite. "Our county is still experiencing growing pains. A man who has been here fifteen years is a pioneer. We rank second highest in the number of farms operated by tenants.

"Fortunately, however, we have a few permanent farmers who form a nucleus for leadership, inspiration and example which will make it possible to evolve a long time program of improvement."

Garthwaite has outlined a plan which calls first for a determination of those conditions of rural life which can be reached by the Farm Bureau and Extension Service; second, a survey of the agriculture of the county; third, determination of a definite objective or goal to be reached in 10 to 30 years.

It is known that the Farm Bureau and Extension Service can work through the churches to affect the religious life of the community. They can influence the social life through such things as community meetings, good roads, theaters, civic organizations and the radio. But their greatest line of endeavor has to do with economic factors, such as (1) volume of production per unit; (2) quality of products; (3) economy of production; (4) efficiency in marketing.

Now, by determining the classes of products of the county, such as forage crops and livestock, field crops, vegetables and melons and fruit crops, it will be found that they group themselves according to two classifications—major and minor.

It is a common fault, Garthwaite pointed out, for the Extension Service to concern itself only with those industries in which there is widespread, current interest, whereas a little study will show that many of the products now regarded as of minor importance, are likely to be the most important in future. "Too little thought," the Imperial County agent points out, "is given to the industries which should be established for the permanent economic welfare of the community."

The Imperial County plan centers around the idea of a definite program of improvement, based upon known existing factors and probable future factors, as determined by study and analysis. So ambitious is this program that the dates 1930 and 1950 were arbitrarily set as the earliest at which it would be possible to arrive at the goal.

By 1930 it is hoped to achieve an economically sound grouping of industries, which is regarded as follows: First, forage crops and livestock; second, fruit crops; third, vegetables and melons; fourth, field crops. Of these four general divisions, only one (livestock and forage crops) was given the future position of comparative importance it now occupies. For example, fruit is now the item of least value in total production whereas the plan for the future places it second.

The machinery for carrying out this ambitious program includes a department of the Farm Bureau for each industry, which will be assisted by the farm adviser and staff, the extension service specialists, the horticultural commissioner, the county veterinarian, the Farm Bureau manager, the high school agricultural teachers, the manager of the local University Experiment Station and the executive committee of each department of the Farm Bureau.

The writer does not wish to give the impression that Imperial is the only county which is providing for future contingencies. But since it is the newest large agricultural district of the State, consequently having the most acute problems, the work stands out as a splendid example of forethought and constructive planning.

Probably few of our readers have realized the extent to which the agricultural leaders, including the farmers themselves who make up the Farm Bureau, are working for the future welfare of California.

If for no other than a selfish reason, every citizen of this State should get behind the Farm Bureau and its great purposes. Granting that there have been many failures (especially in cooperative marketing enterprises) and may be many in future, such endeavors demand not only admiration, but substantial backing as well. No doubt the time is coming when the business men of every town and city will contribute almost as much as the farmers towards the support of the Farm bureau. In the smaller towns, particularly, their welfare depends largely upon the prosperity of the farmers.

A Look Into Our Agricultural Future

PRIZE LETTER ANNOUNCEMENT

First Prize **$15.00**
Second Prize **10.00**
Third Prize **5.00**

AFTER reading the accompanying article, no doubt the reader will think of many future problems of local or Statewide importance, which should be anticiapted now. ORCHARD and FARM will undertake to call these things to the attention of those best qualified to deal with them.

Therefore, put your thoughts into a simple letter of not more than 1500 words and mail it at once.

You may never have an easier opportunity to win a cash prize! In case of a tie, equal prizes of the full amount will be awarded each contestant. Contest closes March 15.

What "pet project" are you fostering? What do you think should be done to improve farming conditions for the rising generation—our sons and daughters?

Only exploiters live for present gain at the expense of the future. Our thinking farmers want to build for permanent prosperity and security. First read the article; then write your letter. Contest is open to any Examiner reader.

Address: The Editor, ORCHARD and FARM, Examiner Bldg., Los Angeles.

Pruning Only One Link in Fruit Chain

By W. P. DURUZ

Instructor in Pomology, University of California

IT IS a trite saying that no chain is stronger than its weakest link. Consequently, each link must be made as durable as the others. Thus in the chain of fruit production the grower must give equal consideration to every factor that enters into his work. If one operation is omitted or slighted the entire yield is affected.

For example: If irrigation is unsufficient, spraying slip-shod, or if pruning or thinning are not done properly, production suffers. Such neglect may result in fruit that is undersize, blemished or a light crop. One poor link weakens the entire chain.

Various annual fruit growers' contests in California have served to bring out this point. The winning orchards in the county contests show the combined effects of all cultural practices. Certain orchards may have been irrigated better, some cultivated more, others pruned differently and still others sprayed more thoroughly; but the grove that stands at the top of the list has all of these practices evenly welded together in one solid chain of orchard operations.

Too often it has been stated that pruning is the most important orchard operation. The way in which trees respond to extremes of pruning and particularly the recent changing over from the short to the long system, or severe to light pruning, is probably the reason for this statement. If a grower has been securing poor yields from severe pruning and by light pruning gets better yields, he gives the credit to pruning.

The reverse also is true. When the yield drops off, pruning is said to be responsible. Pruning is not a cure-all; neither is it the cause of all troubles. It is only one link in the chain.

Many times during the past few years the system of pruning recommended by the University of California has come under the fire of fruit grower critics. Because of trees growing too tall, because of small fruit, broken limbs and for other reasons, this method has been severly criticized. It would involve endless argument to answer all these criticisms in detail.

It must be said again, however, that in many cases investigated the true reasons for complaint could be traced to other things than pruning. In one instance the planting was too close; in another the hand thinning of fruit had not been sufficient; in still another, irrigation was lacking, or the fruit grower failed to use ordinary common sense in following the method of pruning, which the University advocates.

Annual fruit growers' contests serve a most valuable purpose; bringing out and holding up as an example the best orchard practices for a given district. The winning orchard crystallizes, as it were, a well rounded-out program of cultural operations, each in its proper relation to the others. The prize fruit grower is the one who has welded together the strongest production chain. May all others profit by such examples.

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Friendly Philosophy
By THE EDITOR

J. C. KNOLLIN

THIS freedom of modern woman is being interpreted on a fifty-fifty basis by many members of the so-called weaker sex who are addicted to agriculture.

On a recent trip through one Southern California county we counted one day nine women and girls engaged in farm work right alongside the men—or (in some cases) with no men around at all.

By "farm work" we do not mean picking flowers or planting garden seeds. One woman, attired in overalls, was driving a truck, while her husband loaded it.

Another was helping mend fence; still another was directing a number of laborers who were constructing a stone wall, and incidentally mixing cement herself.

Two husky girls were observed harnessing a team, evidently preparatory to doing field work, and another, astride a cow pony, was driving cattle along a lonely mountain road.

NOTHING NEW OR STRANGE ABOUT IT. During the war we were accustomed to hear a great deal about "farmerettes." Many girls took up agriculture as a patriotic course. Those who did so as a change from dancing, bridge and teas soon found they were out of place, but many of those who were accustomed to farm environment, stepped into the shoes of brother or father and really did a man's work.

MANY REASONS—ALL GOOD. Some of these girls are still engaged in farming, because they have learned to like it.

But most of the women one sees laboring in California fields and orchards take their vocation as a matter of course, just as school teachers or stenographers do.

A few of them are foreigners; many are educated Americans. Some are helping able and some disabled husbands. Others are moved by the spirit of adventure or the pursuit of health. But none mentions her enterprise apologetically.

That the passing motorist should regard them with pity would be indeed surprising to most of these feminine farmers.

Hundreds of women in the West have done such work for years. No doubt there will be as many—or more—in future.

ATTRACTIVE OPPORTUNITIES FOR WOMEN. One who observes women doing heavy manual labor, however, cannot help feeling that other lines of endeavor might be better suited to their strength and tastes.

Most women are better qualified than men for agricultural enterprises involving much detail. Many are successfully engaged in poultry raising, rabbit farming, bulb growing and similar enterprises.

At least two California women are making a success of extensive squab production, while the specialties managed by women range all the way from hot houses to gold fish farms.

No, we don't exactly like to see American farm women digging post holes or "skinning" mules (as the teamsters call it).

We admire those who do these things to help the family or farm through a tight pinch, but why waste quick wits and a deft touch upon such dullards' labor? There are plenty of us men with "strong backs and weak minds" for that sort of thing!

What's New? — Keeping Abreast of Agricultural Progress

Butter Output Increases

THE production of California butter increased 17,000,000 pounds last year, being more than was made in the State any previous 12 months, according to the University of California. The value of all dairy products for the past year was over $100,000,000, equal to the value of all the cattle in the State.

Out of each $100 spent for California dairy products, $35 goes for butter, $33.30 for milk, $6.60 for cream, $10.10 for ice cream, $11.50 for condensed milk and $1.90 for cheese.

California Alfalfa in East

A LARGE alfalfa grower and shipper of New York State recently addressed a letter to officials of the California Farm Bureau Federation, pointing out that California alfalfa, selling in the East at $7 to $8 under cost of production in his State, has greatly demoralized the market during the past year. Knowing that most California growers have produced at a loss, owing to high cost of labor and other factors, he suggested some sort of agreement between Atlantic and Pacific Coast hay growers which will eliminate this disastrous competition, and assure fair returns to the producers in both sections.

Dehydration Here to Stay

ACCORDING to Prof. A. W. Christie of the University of California Fruit Products Laboratory, dehydration of fresh fruit is here to stay. He enumerates the advantages of this process as follows:

1. Better average quality and size.
2. Greater average total yield.
3. Lower cost of drying.
4. Protection against rain damage.

Two hundred forty operators of California dehydrators are being questioned for the purpose of ascertaining the amount of fruit cured by this method last year, which is expected greatly to exceed the tonnage of previous 12 months 60,000 tons.

Pruning and Tree Size

AS A result of tests recently concluded in Butte County by the Agricultural Extension Service the relative effects of long and short pruning upon tree development were recorded. In a plot of Robe de Sargent prunes belonging to William Deveney of Durham, the average circumference of nine long-pruned trees was found to be 1.56 inches greater than that of short-pruned trees. Moreover, the terminal growth of the short-pruned trees was nearly twice as long as that of the long-pruned specimens. The short pruned trees were nearly devoid of fruit spurs, while the others showed every indication of bearing a heavy crop during the coming season.

Making Great Wool Center

PLANS are being perfected to scour, comb and spin 5,000,000 pounds of wool annually at Los Angeles, making this city a great wool center.

Builders of this enterprise point out that two-thirds of the wool produced in the United Staes comes from the territory west of the Rocky Mountains; freight rates for shipping this product east are three times what they are to Los Angeles; factory overhead expenses are lower in this city than in any other industrial center in the country; worsted yarns can be produced at a saving of 15 to 20 per cent here; while labor conditions are favorable and cheap water transportation available for shipping woolen goods to Eastern markets.

National Egg Advertising

THERE is considerable agitation among poultry interests for the establishment of a great fund to advertise eggs on a national scale. The phenomenal success of the storage egg campaigns of the Poultry Producers of Southern California and other local movements has stimulated interest throughout the country.

It is pointed out by T. E. Quisenberry, head of the American Poultry School, that a fund of $250,000 could be raised at ridiculously small cost to individual producers and dealers. It is pointed out that even without artificial stimulation, the consumption of poultry products is increasing because of their natural food value. But the same thing applies to the dairy industry; and everyone knows what the milk producers have accomplished by means of advertising and publicity. "Is there any reason why we cannot do the same?" poultry leaders are asking.

Florida to Popularize Dasheen

FLORIDA growers of the dasheen, a potato-like vegetable introduced into this country by Government plant explorers, have formed an association for the purpose of promoting the industry. Although of great importance in other parts of the world, it is but little known in America.

Like the potato, which met with great opposition from the medical profession and the press, and was viewed with considerable prejudice until 1711, the dasheen has passed through a period of ridicule and condemnation. The equivalent of ten carloads of this interesting vegetable, however, found its way to northern markets last season.

The dasheen resembles the potato in food qualities, but, being drier, it contains 50 per cent more actual food by weight. It has a nutty flavor and mealiness which makes it valuable in making "stuffing" or dressing for fowl and other meats. Dasheens also are excellent baked, fried, in salads or as chips, according to the United States Department of Agriculture.

"Certified Yolo Dairy Lands."

A NEW method of converting grain lands into dairy farms is to be tried by the Yolo County Board of Trade, of which Fred Shaffer is secretary. A number of 20-acre tracts of land are to be selected, ten for sale and ten for lease. The owners are to be induced to offer this land for sale and lease on the best possible terms to prospective dairymen.

Secretary Shaffer is to visit dairymen and personally acquaint them with the dairying advantages of Yolo County, crossing the continent if necessary to secure settlers. The latter are to be assisted by the Board of Trade in making a success, as it is believed if newcomers prosper they will attract other dairy farmers to Yolo.

Increasing Fertilizer Supply

THE possibility of increasing the domestic supply of fertilizer is illustrated by the fact that the Government power plant at Muscle Shoals, now idle, could be made to produce annually 40,000 tons of nitrogen, which is one-fifth the entire amount used in the United States, according to the U. S. Department of Agriculture.

Although less than one per cent of our nitrogen requirements are supplied by the fixation of the atmospheric product, more than one-third of all the nitrogen used in the world in 1923 was taken from the air. In 1910 Germany imported two-thirds of her nitrogen, but by the development of atmospheric nitrogen plants now supplies all local needs and is preparing to export this important chemical.

Phosphorus Prevents Disease

THE dread "down-in-the-back" or "loin" disease which has threatened the cattle industry of Texas, has been identified as identical with "lamsiekte" of South Africa, a disease for which a cure has been discovered by British scientists. The trouble has been found to be due to lack of phosphorus in the diet, and may be prevented by the administration of this mineral in the form of bone meal at the rate of three ounces a day. An animal, which is not receiving sufficient phosphorus from pasture or ration exhibits a depraved appetite, especially for bones, sometimes eating from the carcass of a dead animal, thereby contracting the disease. Stiffness in the legs and finally paralysis cause the animal to fall and lie helpless.

Tasting Raw Pork Fatal

THE recent death of a girl of 19 at the Woodland hospital and the serious illness of her mother, as a result of tasting raw pork sausage, has caused California veterinarians to warn the public of the danger of consuming this kind of food.

The Woodland death was the work of a microscopic parasite, trichinae, which when introduced into the human system causes intense suffering and usually kills the victim. Only a few hogs are infected with this parasite, which is killed by thorough cooking or scientific processing.

Slaughterhouse pork that is subject to competent inspection and found obviously infected with trichinae is condemned, but no hog meat is safe food unless well cooked or processed, according to Dr. M. C. Hall of the U. S. Bureau of Animal Industry.

"THEY SAY"

W. P. WING

W. P. WING
Secretary, California Wool Growers' Association

THE breaking up of large range sheep outfits and the rapid development of smaller farm flocks seem inevitable in California.

In fact, most of the big concerns have been losing money right along and admit there seems little chance for them to survive. Labor conditions, together with losses from predatory animals, largely are responsible.

Twenty years ago there were 600,000 sheep in Mendocino County. Now there are but 90,000. This is typical of what has taken place in other stock raising districts.

The California Wool Growers' Association is carrying on an intensive campaign for more efficient control of coyotes and other predatory animals. We must have the support of the public in forcing all agencies—Federal, State and County—to continue and enlarge the work already under way.

One of the largest and most successful sheep men in the State, who has disposed of his holdings, says he will not re-enter the business until the coyote nuisance is abated. His losses from this source were enormous.

Many farm flocks, however, are proving very profitable. Better lamb marketing methods, sponsored by the association, have done much to stabilize local prices.

As President F. J. Hagenbarth of the National Wool Growers' Association stated recently, "Two things are necessary for human life to exist—food and shelter; the sheep produces both—meat and wool. When the public realizes the value of sheep in making life more worth living, all will be united in giving the sheep man a square deal."

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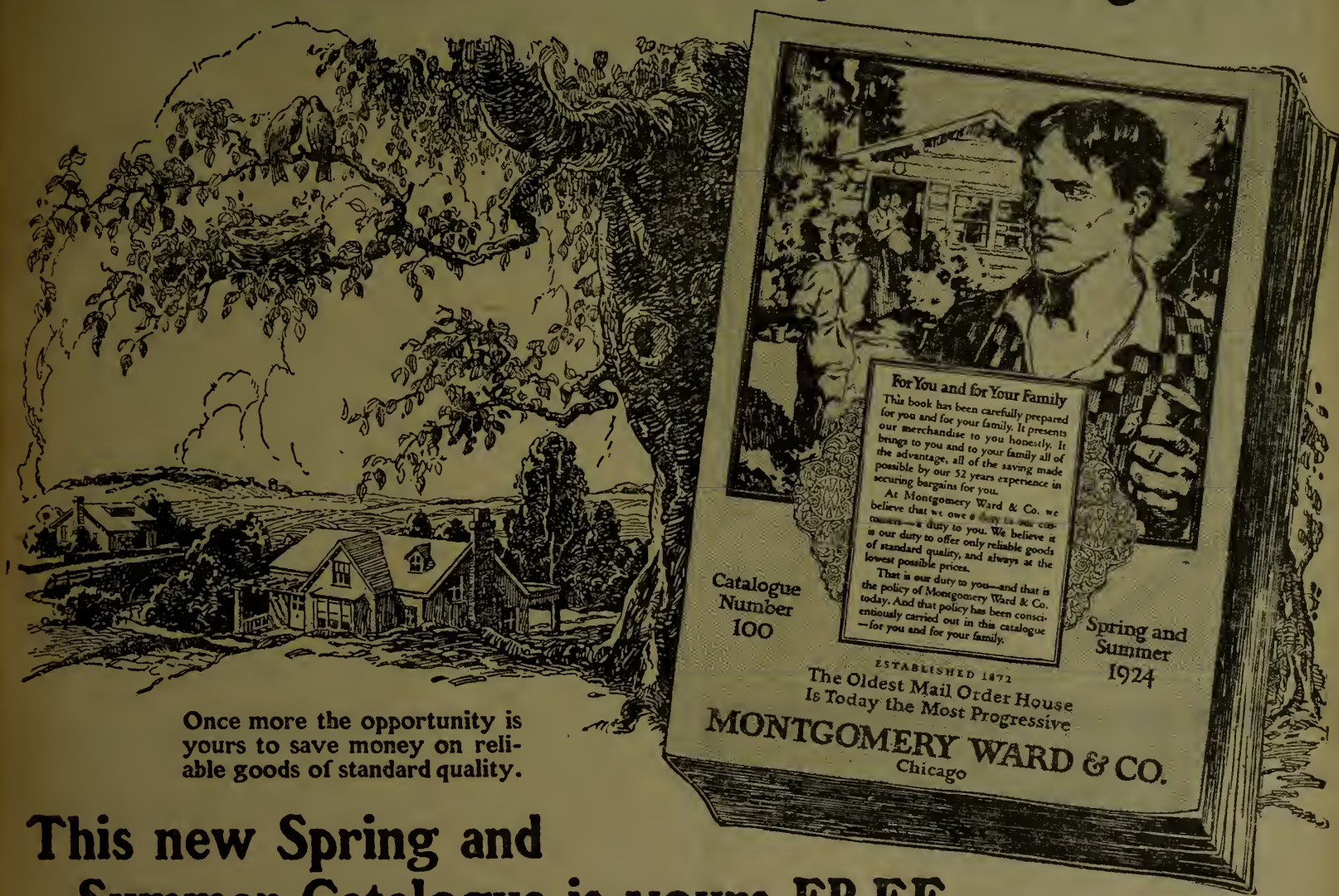

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This new De Laval has been on the market more than a year, and already there are over 100,000 in use; and from the enthusiastic reports received concerning it there is no question but that it is the best De Laval Separator ever made. And that is saying a great deal when it is considered that De Laval Separators
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—are overwhelmingly endorsed for efficiency of service by cow testers, who reach over 6000 farms;
—are used and approved by creamerymen, college and dairy authorities;
—and have the longest record of use, as proved by the life of the thousands of machines in the "Oldest De Laval Users Contest," which averaged over 20 years.

In spite of the fact that the new De Laval is much improved, yet in terms of butter it costs much less. In 1913 it took 231 pounds of butter to pay for a popular-sized De Laval. Now it requires only about 188 pounds (average prices for years 1913 and 1923) to pay for the same machine—43 pounds or 18% less butter. In addition, the present-day De Laval is at least 20% better, having 10% more capacity, a bell speed-indicator, a self-centering bowl, and many other improvements and refinements.

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Feeding Cows in Dry Periods

Practical, Scientific Analysis of the Dairy Cow's Needs Between Lactation Periods

By G. M. DRUMM
California College of Agriculture

SUCCESSFUL feeding and handling of a cow in preparation for production test really commences when she is born. The heifer should be grown well from the very start and never stunted by underfeeding or neglect. When growth is retarded or stopped the animal never entirely recovers. It is well to economize as much as possible, but it is necessary to feed grain quite generously until the heifer is about a year old. After that age she has sufficient capacity to consume a sufficient quantity of roughage for maintenance.

Many people welcome the time when a cow is dry as an opportunity to save feed without any apparent indication of a loss on the milk sheet. Consequently, she is turned out on scant pasture or otherwise compelled to rustle and become rundown right at the time when she ought to be conditioned and built up for the next lactation.

This is false economy, for several reasons. It is not a saving of feed. The old saying that, "A bag of feed before a cow freshens is worth two afterwards," certainly is true. It requires much more feed to get a thin cow up to her maximum production when she freshens and this is expensive and hard on the cow.

Dairymen who have been feeding their dry cows what the feeding standards call for, or perhaps less, should try giving them a rest of two to three months and supplying three to four times the amount of protein needed for maintenance and about four times the amount of total digestible nutrients. They will find that it is a paying proposition.

Cows should be dry and have a rest of from two to three months. Nature demands it. It is absolutely impossible to feed high producers enough feed shortly after they freshen to keep them at a constant weight.

Most dairymen have observed how such cows become rundown at this time. This is what is termed physiological underfeeding, because it cannot be avoided.

In every hundred pounds of milk there is about seven tenths of a pound of ash. Cows have been found to excrete more than that amount every day which has been used in the vital functions of the body. Every use of ash in the body is not known, but we do know that it is used for the following purposes: (Continued on Page 9)

Ten Acres Enough

"FOR twenty-five years I farmed 160 acres of wheat land in one of the Middle Western States. It was a good farm, as farms run in that State. I met with fair success and did as well as my neighbors.

"A few years ago I sold out and came to Salt River Valley, Arizona, and bought ten acres in the Roosevelt District. My ten-acre farm has cost me about as much as my 160-acre farm sold for, but its earning capacity is more, for I make more money from this little farm than from the entire quarter section in the Middle West.

"In fact, I believe I could take one acre of strawberries in the Salt River Valley and clear more money than from 160 acres of wheat on my old farm."

That is the way that W. R. Tackitt, one of many successful Arizona small-acreage farmers, speaks of the opportunities for farmers in the Valley that has been reclaimed from the desert by the building of the Roosevelt and Granite Reef Dams and the wonderful system of canals and laterals that distribute the unfailing supply of water to a vast area of rich lands.

Tackitt is a modest man who does not court publicity and it was with some reluctance that he told of his success in the Salt River Valley. On his little ten-acre farm there is enough diversification to break any monotony in farm work; enough variety of crops to keep up continued interest, and a distribution of income over practically the entire season.

ALFALFA YIELDS HEAVILY

Alfalfa is raised to feed team of horses and a cow and leave some to sell. On one measured acre the past year Tackitt cut 10 tons of hay, by actual weight.

He was asked how he was going to handle this acre next year.

"Plow it up and put it in cotton," he answered. "That is the way to get the most from land here. It is easy to get a good stand of alfalfa at a small cost. Alfalfa renovates the soil, adding humus and nitrogen. It is cheap fertilizer when plowed under.

Some persons have expressed surprise that Tackitt's yield of alfalfa hay is considerably in excess of the average.

"Such a heavy yield might not be possible on a larger acreage," admits Tackitt. "You see, I keep the ground working, not only by a rotation of crops, but by cutting the alfalfa when it is in best condition and then getting the hay off as soon as possible and irrigating the ground immediately afterwards.

"I irrigate at night, during the summer months, which prevents damage to the young alfalfa shoots. In this way it is possible to grow a crop of hay in four weeks."

On the Tackitt farm some cotton is raised and good yields are made. A cow is kept, while chickens, ducks and turkeys add revenue. This means hard work, in which the wife and children share, but the work is no harder than it was on the old farm back East.

"The Salt River Valley is a place where a man gets something for his work," declares Tackitt. "We live well, wear good clothes and always have money to spend, which is better than we did with the Michigan 160 acres."—M. E. BEMIS, Agricultural Agent, Phoenix Chamber of Commerce.

CARLOAD AVOCADO SHIPMENT

A carload of Trapp avocados recently was received at San Francisco, the fruit coming from Florida. It has been found necessary to place ice in each box of avocados transported by rail

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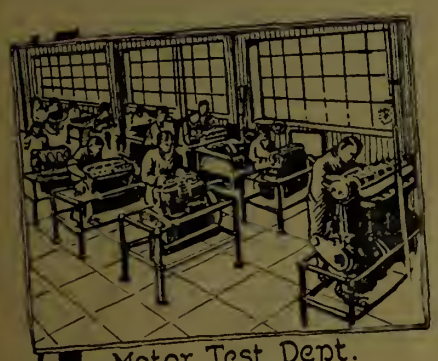
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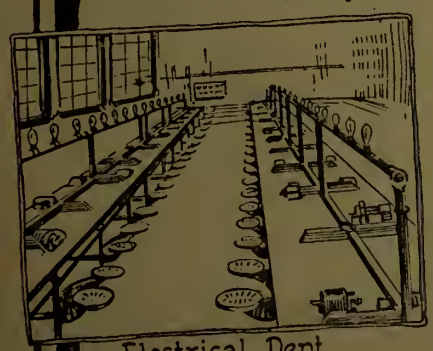
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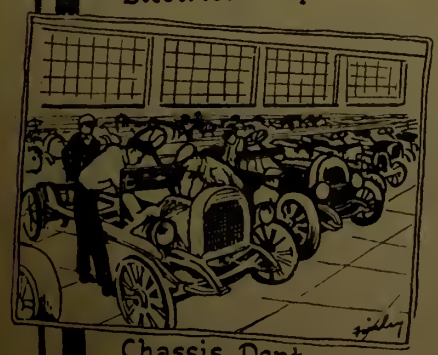
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Visitors welcome on week days only.

A. P. RIDEOUT,
Rideout Heights, Whittier, Calif.

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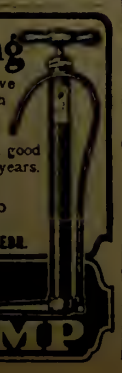

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ROSE MFG. CO., HASTINGS, NEBR.

ROSE
EASY VALVE ACTION
TIRE PUMP

Feeding Dry Cows for Future Production

(Continued from Page 6)

One—Formation of the skeleton.
Two—Coagulation of the blood.
Three—Regulation of the heart muscles.
Four—Digestion and many other uses.

IMPORTANCE OF ASH

We can see that it is absolutely impossible to supply sufficient ash and flesh building materials to the high producing cow when she is at her maximum production. Before the cow has decreased markedly in production she has the work of growing the unborn foetus.

The breed associations that have the double letter classes in which the cow calves during the test are finding that many of the calves dropped are born weak. It is not any surprise when we realize how the ash supply of the cow is depleted by the milk production.

It is sometimes believed that getting cows in high flesh while dry impairs the regularity of breeding. However, the majority of evidence seems to indicate that getting animals fat while dry has little effect on this problem. Irregular breeding is caused more often by abortion, excessive forcing while on test, lack of exercise or delaying breeding more than four months after calving. Allowing an animal to remain open for a considerable length of time is quite likely to lead to such trouble as cysts or other complications, making conceiving very difficult.

FEEDING MINERAL RATIONS

At the present time there is quite a widespread interest in mineral rations. This interest is perhaps increased by numerous companies offering commercial mineral mixtures for sale. Feeders who have used a poorly balanced ration lacking a legume hay have found that quite often the milking cow's body becomes depleted in ash and they are wanting a sure method of supplying a sufficient amount.

Experiment stations are working on this problem, but it is difficult work. In attempting to supply ash in separate mineral mixtures much difficulty has been encountered, due to the fact that there are few compounds containing the desired elements from which the animal can assimilate them. Quite often they are excreted from the animal without any part of them being used for production, maintenance or growth of the foetus. Sometimes the animal uses minerals in the vital functions of the body, and then they are excreted. Much work remains to be done in solving the mineral problem.

In the case of cows the supplying of minerals rests almost wholly on the kind of roughage fed. It has often been found that a cow receiving a dry roughage low in lime content and supplemented with grains may abort her calf. This usually occurs when such hays as oat or wheat straw are fed. When a lime salt was added the offspring was vigorous, but not as strong as when a natural ration, including clover or alfalfa hay, was fed.

FEED LEGUME ROUGHAGE

At the present time it seems best to feed clover, alfalfa or soybean hays whenever possible. If it is necessary to use poor soils where legumes will not grow and the dropping of premature calves seems prevalent, it is a good plan to add three or four pounds of limestone, steamed bone meal, wood ashes or rock phosphate to each hundred pounds of grain.

Many dairymen have started purchasing the commercial mineral mixtures at about $400 per ton. Some of these have been analyzed and were found to contain about 85 per cent salt. Salt can be purchased cheaper than that. Feeding some of the individual mineral feeds is much cheaper; they will do no harm and they are just about as likely to do some good.

In the dry or preparation period cows ought to receive just as good care as the others that are milking. It usually is necessary to feed three times or four times per day in order to get the gains desired at this time. It is not necessary to put them in box stalls, nor is it desirable, because of the extra expense of additional labor, bedding and barn space. They can be fed in stanchions and left under a shelter shed or in a small pasture the balance of the time.

DRY COWS NEED PASTURE

Dry cows ought to be pastured for an hour or two each day in order to obtain the green feed which aids materially in assimilating mineral matter and to induce them to take moderate exercise. Daily grooming promotes good health and aids materially in the conditioning and appearance. During the fitting period it is a good time to win the friendship of the cow by petting and gentle massaging of the udder so that she responds more readily to good treatment when on test.

Silage or green feed and good alfalfa hay should form the foundation of the ration at this time. They ought to have all they will consume and in addition sufficient grain and wet beet pulp to get in good condition. It seems the policy to feed the grain and beet pulp as a damp mash, as the cows appear to relish it and will consume more, especially in hot, dry weather.

The exact proportions of concentrates in the grain mixture are of little importance, so long as the proper feeds are used and sufficient nutrients are provided. A thousand-pound cow for maintenance requires seven-tenths pounds of protein and 7.225 pounds of carbohydrate equivalent. Now a ration ought to be supplied that will furnish three or four times those amounts for building up the animal rapidly.

	Concentrates protein	Carbohydrate equivalent
300 lbs. rolled barley ...	27.0	211.2
300 lbs. rolled oats.....	28.2	181.8
100 lbs. wheat bran.....	12.5	48.4
50 lbs. soybean meal ..	15.3	27.6
50 lbs. linseed oil meal.	15.1	23.8
800	98.1	492.8

BALANCED RATION

4 lbs. salt.		
8 lbs. steamed bone meal.		
16 lbs. above mixture ..	1.96	9.856
25 lbs silage	.15	3.18
15 lbs. alfalfa hay	.495	1.695
8 lbs. dried beet pulp.	.47	5.44
Total nutrients...	3.075	20.171

The ration given supplies about the excess of nutrients needed to build up a cow rapidly while dry. As the period of pregnancy advances and the foetus grows larger and the tissues of the udder commence to enlarge it is well to supply more protein. During the two weeks prior to freshening it is well to change the grain mixture to one consisting of equal parts of bran, rolled oats and one-half part of linseed meal. This change also eliminates the barley which is heating, and tends to cause caking of the udder.

A cow can be started on 8 to 10 pounds of grain per day and the amount gradually increased, so that at the end of three weeks she is on full feed, consuming 15 to 20 pounds per day. Care should be taken to see that she does not go off feed and is kept just a little hungry, as it is difficult to get an animal back on feed when not stimulated by milk production.

When a cow starts to make up an udder it is a good plan to massage the udder gently once or twice a day, as this tends to relieve the congestion in the circulation and to prevent caking. At this time the instinct of motherhood is strong with the cow, therefore this is the best time for the caretaker to make friends with her.

Calving time is a critical period and too great care cannot be taken to see that the cow is in a quiet, well-bedded maternity pen or shed at this time and well cared for. If the weather is at all cold it is a good policy to take the chill off the water and the feed and to blanket the cow. There seems to be less difficulty if the calf is taken away in about twelve hours after it has been allowed to suck once or twice. The cow forgets the calf easier and settles down to business and the calf is easier to teach to drink.

Vogt's Fruit Growing

(Continued from Page 2)

his trees clean, no matter what it costs, but not to waste money by spraying any more than is necessary. The usual dormant spray of Bordeaux, with lime-sulphur in the spring, is the regular program.

The fourth essential is irrigation. "Plenty of water" is Vogt's motto, but that does not mean too much water. He judges water requirements, not by the appearance of his trees and vines—because when a plant shows it is suffering for water it may be too late to prevent damage—but by consistent use of the soil augur.

His soil is an easily-worked sandy loam—the kind that indicates moisture conditions most easily—and during the irrigating season, Vogt is one of the busiest borers of holes in the entire county! But he doesn't guess; he knows.

Finally, we come to cultivation and this is where Vogt takes issue with some of his neighbors. For he believes in thorough deep tillage and has not feared to back his theories by actual practice.

He has a small, wheel-type tractor of the kind (Continued on Page 10)

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Cows—and other livestock—are constantly receiving external injuries. To keep these hurts from becoming serious apply Bag Balm promptly. This great healing ointment cleanses and protects the wound, stimulates circulation and restores the injured tissues.

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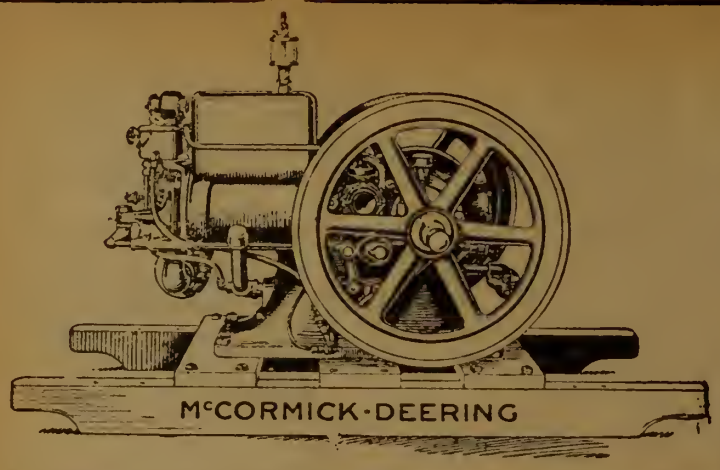

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In 1923 the wheat crop of Canada exceeded the 1922 crop by almost 100,000,000 bushels. In Alberta the average yield was 26.5 bushels per acre and there were many individual cases where yields of 50, 60, 75 and 80 bushels were returned. Other crops showed a corresponding increase over previous years with equally high yields. These enormous yields on moderate priced land even at average prices for farm products have placed many farmers on the highroad to success.

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You must inspect the land before buying in order to judge its fertility. Special inspection trips from points Chicago and West will leave on the first and third Tuesdays each month. Single fare plus $2.00 for the round trip. Let us arrange details. Send for complete information on this new and amazing plan. These terms are so easy that you can own your own farm home—instead of renting.

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Vogt's Fruit Growing Methods

(Continued from Page 9)

not distantly related to the well-known flivver, and says that in this sandy soil, it has proved more economical than expensive machines, because the sand soon causes havoc anyway and cheap replacement of parts is of more importance than greater power. Special, pointed "grouters" provide better traction and increase the pull for deep cultivation.

SUBSOILING DONE REGULARLY

After the first irrigation, the orchards are stirred up with a spring tooth harrow. The next cultivation is done with a chisel. A single-standard subsoiler is used in one direction in the fall and the following year is run crosswise. Then the subsoiling is omitted one year and the process repeated the next two years.

The same method is followed in the vineyards. Vogt has what has been described as the heaviest yielding Malaga vineyard in the county. He has fertilized with sheep manure, about one and one-half tons per acre each year. His malagas last year yielded sixteen tons of number ones, accepted at the packing house, and have averaged fifteen tons per acre for three consecutive years!

A remarkable system of irrigation, patterned after the underground, cement pipe system used in citrus groves, enables Vogt to water his vineyards with a minimum of labor and with the greatest efficiency. There is a standpipe for each row, located near the center of the tract, and opening both ways. By means of surface dividers, a flow of 1000 gallons per minute is cut into 100 streams. The water is allowed to run continuously until the irrigation is completed and frequently runs all night without attention.

Water is secured from a sixty-foot well equipped with an electric motor, and with the pump running as long as 140 hours at a stretch, there has been no diminution of flow or noticeable lowering of the water level, according to the owner.

One outstanding accomplishment on the Vogt ranch is almost complete control of mealy bug, this pest having seriously affected no less than 300 vines. At the expense of no end of hard work, and at considerable cost, Vogt succeeded in reducing the number of "sick" vines to six within the short space of two seasons. This was accomplished by removing all the old bark and spraying with miscible oil.

"True," admitted the owner, "This meant an almost prohibitive cost per vine for those treated, but it was necessary and I think entirely justified in order to prevent spread of the pest to other vines. Instead of suffering increasing infestation, as in the case of some growers, I have practically eliminated this trouble."

Sulphuring for mildew control is resorted to when necessary and Vogt believes proper use of this material will control this disease, this ranch having been practically free from mildew this year as well as previously.

For irrigating the orchards, basin checks are thrown up with the tractor, using a "V" type ridging machine. Gates are made with a horse and rotary, self-dumping scraper. In order to facilitate preparation for irrigation, Vogt has "flagged," with bands of whitewash, the trees which indicate location of ditches.

By showing his tractor driver a map of the block, the owner can indicate without personally going over the orchard, the points at which turns are to be made, or ditches constructed. Often this obviates the necessity for covering the same ground twice.

Probably no sixty-acre fruit ranch has more complete equipment. "But," the owner observes, "I know of no more justifiable investment than spending several thousand dollars for the proper implements, tools and equipment. Under present labor conditions, the economy of time alone is sufficient to cover interest and depreciation, not to mention the value of being able to do things properly and on time. I don't believe it pays to try to get by with inefficent tools. But it would be equally as foolish to buy a lot of expensive stuff and then fail to take proper care of it."

So much for Vogt's methods. He is neither a farmer nor a Californian by birth, but has adopted both his profession and his present home State for the love of them. He was raised in the intermountain country and engaged in the meat packing business there, but had an inherent love of growing things and therefore, by the natural law of gravitation, arrived finally on a California farm.

BELIEVES IN CO-OPERATION

For several years he tried fruit growing in the Santa Clara Valley, but although he profited by buying and selling ranches there, did not feel really satisfied until he acquired his present acreage.

"I believe in Merced County," he concluded, "and also in co-operative marketing and the farm bureau. My canning peaches are sold through the California Canning Peach Association, my raisins through the Sun Maid and my fresh fruit through the California Fruit Exchange. I am not discouraged by recent marketing difficulties. Everything is going to come out all right. We have to take the lean along with the fat."

"And what do you think of the work of the county agents?"

"Finest fellows in the world" he replied with characteristic, smiling enthusiasm. "Not half appreciated, either. Instead of finding fault we ought all to co-operate with those fellows in every possible way."

From which, recalling the suggestion that had sent us to Vogt's place, we concluded we had uncovered a real case of mutual admiration.

"But we do have some great arguments," both rancher and farm adviser confided to your correspondent.

Fighting Frost With Water Sprinklers

By J. ELIOT COIT

OVERHEAD irrigation has many advantages over furrow irrigation as a means of wetting the soil. While it is not practical on a large scale, there are many small citrus and avocado groves which have been overhead irrigated with very satisfactory results.

The question often has been asked as to the practicability of using sprinklers on cold nights to prevent frost injury. This season an opportunity was given to try out this method under most favorable conditions.

A number of growers ran their sprinklers on New Year's night, with the result that the fruit was protected. In a number of cases, however, the trees suffered damage from breakage, due to the heavy load of ice which formed on them.

The changing of water to ice liberates a certain amount of heat which protects the fruit, even though it is solidly encased in ice. The appearance of sprinkled groves in the morning certainly is picturesque. When the limbs all freeze together they support each other, but when melting starts large masses of ice from the upper limbs crash down on the lower limbs, which already are loaded to the limit, and serious breakage results. This damage is minimized where the trees are well propped.

Once the sprinklers are started they must be kept going as long as the cold lasts. In case the soil already is wet there is danger of overirrigation, which on light soils washes away available nitrates and on heavy soils results in water-logging the ground, with injurious results.

In the case of avocados this method of frost protection is of little if any value, because avocado wood is very soft and brittle and the resultant breakage is too great.

The results of this season's tests indicate that on light, well drained soil which is in need of irrigation and where citrus trees are well propped, that overhead sprinkling will save the crop. Under any other conditions this method is questionable—to say the least.

Planting "Pie Timber"

ALMOST everybody who has a few square yards of ground to spare could have an abundance of delicious "pie timber" during the winter or early spring months, when fresh fruit is unavailable, by setting out a few rhubarb plants. The fact that few persons have made this very profitable pie provision is a good illustration of the way the average individual is not living up to his opportunities.

If everyone knew how easy it is to grow rhubarb and what a vast improvement new varieties are over the common kind, few homes would be without this healthful, wholesome vegetable—or is it a fruit? Like the strawberry rhubarb grows like a vegetable and is eaten like a fruit.

"The new varieties of winter rhubarb start to grow vigorously in October—in Southern California frost-free areas—and produce stalks continually until common varieties make their appearance six months later," points out J. B. Wagner, the veteran Pasadena nurseryman who originated many of the improved varieties of rhubarb.

This authority advises that rhubarb seeds or seedlings be never planted when subdivisions are obtainable because the former deteriorate rapidly. It is essential to fertilize the ground heavily and irrigate thoroughly also not to cover the crown of the newly set plants more than one-half inch deep. Stable manure and nitrate of soda are the best rhubarb fertilizers.

Carlsbad Believes Avocados Good—Plants Them

Water Brings Water Pears

INTELLIGENT observers believe that Northern San Diego County is on the verge of great agricultural development, made possible by the completion of extensive irrigation enterprises. Because of favorable climatic conditions, the avocado—"water pear," the Mexicans call it—seems destined to play an important part in the future farming industry of this section.—*The Editor.*

By O. H. BARNHILL

CARLSBAD avocado orchardists are good co-operators and already have organized a local association, for purely educational purposes—an avocado grower soon finds he has much to learn. J. R. Newberry is president of the society, but is not growing avocados commercially.

"I raise avocados because I love them," explained Newberry, "and because I enjoy working with avocado trees. The first time I tasted avocados I ate eight of them. That was down in Mexico, where avocados grow wild. The natives use them for all sorts of food purposes and in other ways—they even grease their wagons with some of the oilier varieties."

Newberry, who has been selling fruit for 45 years, sees a great future for the avocado. He started the first chain grocery stores in Southern California and at one time managed 53 of them.

"Avocado growers should pay more attention to marketing their crop," declared Newberry. "This end of the business can be managed successfully only by co-operation. We need more intelligent dealers too, who will tell customers just when an avocado is in proper condition to eat. Almost everybody likes the fruit when it has been properly ripened.

"The local market, if properly supplied, will take care of our total output for years to come. If Eastern visitors are given a taste of this incomparable fruit they will create a demand for it when they return home, which will take care of future markets."

A. R. Rideout, Whittier orchardist and nurseryman, agrees with Newberry about the necessity of co-operation and the importance of building up a home market.

"I became tired of waiting for the California Avocado Association to market our fruit," related Rideout, "therefore I decided to see what I could do toward selling avocados. I left fruit with dealers from Long Beach to Pasadena, telling them what price to charge. In this way a good local avocado trade was built up. It takes me two days to supply our dealers.

BETTER PRICES SECURED

"We pay 25 cents a pound for Ganter and sell them for 30 cents. This gives growers $7.50 per lug box, compared to $4.50, the price which dealers had been paying."

This extra $3 a box looks good to the orchardists, who are correspondingly grateful to the industrious Rideout. Choice avocado growers are paid [illegible] per box by packers, who charge it to $7.

"The Lyon's tender habit of growth is really an advantage," explained Rideout, referring to his favorite variety, "because it makes possible the planting of 300 trees to the acre, setting them eight feet apart in rows a rod apart. Here is a picture of a tree in its third year, bearing 76 large fruits. If your trees averaged 80 fruits each and they sold at only 25 cents each, what do you suppose you would get for the crop from your ten-acre grove? *$60,000.*"

After hearing such talk as this, sampling the wonderful fruit and seeing the tropical avocado trees, with their glossy, green leaves and great, heavy fruits, is it any wonder that persons get the "avocado fever"? Poor "suckers" from the city are not the ones who succumb most readily to the germs of this delightful disease, but successful orchardists and big business men, who have the necessary vision to see the possibilities of the industry.

It has been long recognized that San Diego's north coast country lacked only water to make it a tropical fruit growing center. The climate is said to be the mildest, most equable in the United States; the soil is mostly free from rocks, adobe alkali and hardpan and the location contiguous to the ocean, State highway and Santa Fe railroad, as well as convenient to two important markets.

Water now is available in large quantities, due to the recent completion of extensive irrigation projects. Three thousand acres in the immediate vicinity of Carlsbad, where land ready for planting is priced at $600 to $750 per acre, can be watered from the San Luis River.

The water is pumped into settling tanks and from thence into a 7,000,000 gallon reservoir five miles distant. A second reservoir holding 3,000,000 gallons is located only three miles from Carlsbad. A third reservoir—finished only last May—holds 750,000 gallons and supplies some fine, high land two miles out. The water costs 60 cents per 1000 cubic feet.

Until their avocado trees come into bearing the Carlsbad ranchers expect to keep the pot boiling by growing early vegetables for the Los Angeles market. This region already is known as the greatest winter garden district in California. Over 200 carloads of peas have been shipped out in a single season. The aphis, however, has become such a pest that the pea acreage has been materially reduced.

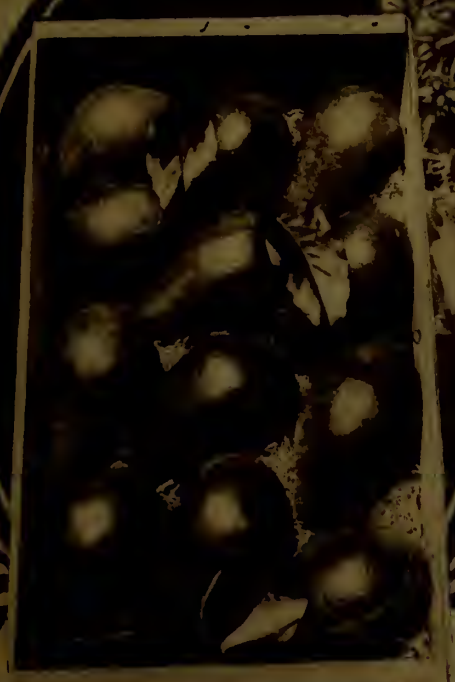
Early potatoes, string beans and other vegetables are grown very successfully and sometimes bring fabulous prices, such as $9 a bushel for potatoes. Vegetables ripen every month in the year, turning topsy-turvy our ideas as to when certain crops are seasonable. Because of lack of killing frosts tomato vines sometimes live from year to year, while castor bean plants make good sized trees.

But to return to the avocado industry. The Carlsbad growers meet once a month to discuss their problems and tell each other what they have learned about this interesting fruit. Being dissatisfied with the way the California Avocado Association turns over their members' fruit to a single dealer and with other features of the management, they are forming a new association.

Seventy-five members already have been secured, forty at Carlsbad and most of the others from around Whittier. The membership fee is $3, and selling fruit will be the main business of the new organization.

Meanwhile, many outsiders are sitting tight and making ready to get into the avocado game as soon as sufficient trees for planting are available.

A good specimen of the Lyon avocado, an early, heavy bearer. Both the tree and girl belong to A. E. Rideout, Whittier horticulturist.



Well packed box of fancy avocados. Such fruit commands big prices.

Two common types of avocados, showing shape and seed.

Illustrating early fruiting tendency of the Lyon, an advantage offset by certain defects.

Original Orange Growing Methods Are Successful

Tends Six-Acre Grove by Hand

JAMES FISHER, expert horse-shoer, grew tired of supporting a citrus orchard by manicuring equine hoofs. Therefore, one fine day he hung up the blacksmith's apron, grabbed a hoe and tried his hand at horticulture. In this new work he has been remarkably successful, although some of his methods are contrary to established practices.

By O. H. BARNHILL

EVERYBODY likes to see a good fight. Some persons prefer a place at the pugilistic ringside, others get a great "kick" out of seeing cats and dogs try to chew each other up, while still others enjoy watching a mere man overcome the forces of nature, while struggling against serious handicaps.

James Fisher, erstwhile blacksmith, but now a successful orange grower at Monrovia (Los Angeles County), took part in the kind of a contest last described, coming out first best. The medals he won are of the circular silver variety, of which he has quite an extensive collection, each bearing the U. S. Mint stamp.

The handicap against which he labored were age and inexperience. True, he knew the difference between an orange and a banana, but his work at forge and anvil was about as far removed from fruit growing as writing this article is from making kelp fertilizer. Fisher acquired the orchard in order to give it as a wedding present to his son. The latter, however, traded it for residence property in an Eastern city, where he went into business with his wife's folks.

After operating the orchard a half dozen years with hired help, the village blacksmith decided he would have to give the grove his personal attention if it ever was changed from a liability into an asset. Being a man who always did his own thinking, the new orange grower attacked each orcharding problem with an open mind, unhampered by precedent and the opinions of others.

"I just do whatever seems right and common sensible, even if it is different from my neighbors' methods and they call me an old fool," explains Fisher. "I don't attempt to square my work by the rules of science, but I get results, which is what I am working for."

HANDLES SOIL CAREFULLY

The four-acre orchard is located on a foothill, the ground sloping south, east and west, like a hog's back. The soil is gravelly granite and requires careful handling to conserve fertility and moisture. For several years the ground was plowed and cultivated in the usual way, basins being thrown up around each tree to catch and hold the irrigation water.

Then one day Fisher astonished neighbors by selling his team and implements, reserving only shovel and hoe.

"Going to buy a tractor?" inquired a curious friend.

"No—going to try the 'armstrong' method," replied the experimental orchardist.

"You don't mean to say you are going to take care of a four-acre grove by hand?" incredulously returned the friend.

"I certainly do," affirmed Fisher. "What's the use of supporting a team of horses and then using them to tear down the basins that take so much work to build up every year? Furthermore, it isn't good for the ground to be all ripped to pieces every year. Exposing it to the sun and air seems to burn the life out of it. Plowing also disturbs the feeder roots of the trees."

Although Fisher has reached the age of three-score-and-ten and all his life has done a great deal of hard, heavy work, he keeps not only his four-acre grove, but another of two acres belonging to his daughter in the pink of condition, entirely by hand. He appears to be in as good condition as his trees, indicating that the orchard work is not an excessive burden.

Soil fertility is maintained by covering the gruund with dairy manure, 25 tons per acre at $3.50 a ton, two years out of three. This barnyard fertilizer contains more or less weed seed, which fouls the land, causing much extra work to keep it clean. "Why not use chemicals, instead of manure," Fisher was asked.

"Because animal fertilizer contains certain properties which are necessary to keep the ground in good condition," he replied.

The ground is irrigated by running a tin pipe line down the ridge and turning it to either side, as needed to cover the orchard. Short, light sections of four-inch pipe are used, therefore, the work of moving the pipe is not heavy. Each joint rests upon a lug box, into one of which the water runs when the pipe beyond has been removed.

"Maybe it's only an 'old woman's idea' to prefer to have the water flowing gently over the top of the box onto the ground, instead of dropping directly from the end of the pipe and washing the humus and fertility out of the gravel," confessed the aged orchardist, "but I've worked with the ground until I have a pretty good idea what it likes and is good for it."

Water is applied every two months during the growing season, the soil being thoroughly soaked down as far as the roots extend. A few heavy irrigations are preferred to several light ones.

The trees themselves are given practically no attention, besides an annual fumigation for scale. The limbs when loaded with fruit nearly touch the ground, and in many places reach those of adjoining trees, furnishing another reason why team or tractor cultivation is impractical.

The exact age of the trees is unknown, but probably is not far from that of maximum production, thirty-five years.

The yields secured by Fisher's "hand manicure" method of orcharding average better than 1000 boxes per acre. This constitutes ample "proof of his orange pudding," since the results compare very favorably with those obtained by other orchardists.

Years ago Jackson joined the California Fruit Growers' Exchange, but was so dissatisfied with the price received for his fruit—60 cents a box—that he withdrew and since has sold his oranges to independent dealers. The terms are cash when the fruit is taken from the trees and prices have been very satisfactory.

The idea of putting his fancy fruit into a pool and receiving no more for it than growers of inferior oranges are paid does not appeal to Jackson. Of course, an effort is made to classify all fruit into uniform grades, but this grower believes some oranges are a good deal better than others, even in the same grade.

He also is of the opinion that the directors, themselves large producers, are apt to give their own fruit the advantage in shipping and selling. He does not know of any case where this has been done, but considers it only human nature for a man to consider his own interests first.

EXCHANGE DOES GOOD WORK

Jackson admits the Exchange has done a great work in advertising California fruit and in taking the marketing of same out of the hands of dealers and putting it where it belongs—with the producers. If it were not for the Exchange he believes dealers would buy oranges at their own low speculative prices.

"Then is it not your duty to support the Exchange?" Jackson was asked.

"I am like the Catholic priest," he replied, "who baptized his own baby first for fear the water wouldn't hold out."

Despite advancing years and the great amount of hard, hand labor which he performs—also doing his own cooking and housework during the busy half of the year—Jackson extracts a great deal of enjoyment out of his horticultural life, being of a happy, optimistic disposition. He keeps the two acres of residence grounds in front of his orchard in fine condition and even painted his large, two-story house recently. He has great faith in the future of the sunny Southland and is resignedly waiting to be overwhelmed by the tide of population which is rolling in from the city (Los Angeles) by the sea.

This is Lady, canine "guardian angel" of the Fisher ranch, in a watchful attitude for orange thieves. Before she went into action much fruit was lost through petty pilfering.

The Fisher grove is located in the thermal belt, close to the Sierra Madre Mountains. When frost cuts the orange crop short and prices soar, the owner of these trees makes a "killing."

A perfect specimen of Washington Navel, leading orange variety of California. Fisher's hand-tended orchard produces high quality fruit, for which buyers pay attractive prices.

Profitable Olive Crop

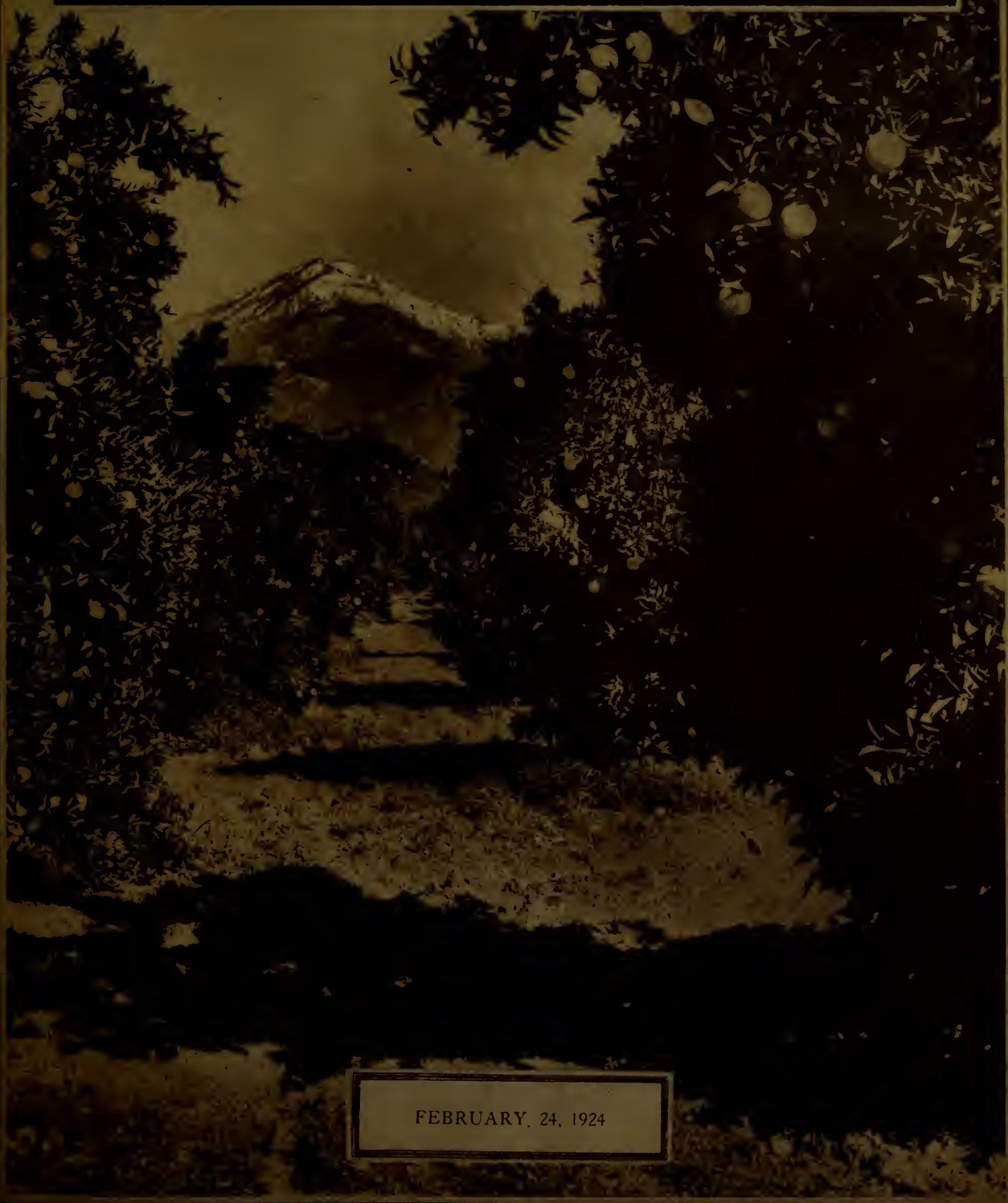
THE 1923 crop from W. H. Whitnack's seven-acre grove of Sevillano olives near Corning (Tehama) was sold for $4200. There were 14 tons and the price received was $3[illegible] a ton. There are in the orchard 6[illegible] trees, each of which bore a $7 crop on an average.

The cost of picking the fruit was $420; irrigation, $70; cultivation $10[illegible]; hired help (one man), $500; other expenses, $30; total, $920.

There is an eight-acre grove of other fruit on Whitnack's 15-acre place, but the entire receipts from this mixed orchard was only $400.

Four years ago Whitnack trad[illegible] Canadian land valued at $12[illegible] for his California fruit ranch, with which he is much pleased.

ORCHARD and FARM



FEBRUARY 24, 1924

Gaining Health and Independence on One Acre

BY O. H. BARNHILL

LIKE many other would-be farmers, L. W. Fike thought a one-acre tract was too small to support a family. However, he was financially unable to purchase and improve a larger place, therefore — being possessed of the spirit that is willing to "try anything once"—bought one acre of land in the San Fernando Valley near Owensmouth, pulled off his coat and went to work.

A siege of "flu" five years ago had left him so broken in health that he was unable to continue college teaching, in which for 30 years he had been engaged. It was not easy to give up the work of a lifetime, for which long and costly preparation had been made—Fike holds two degrees from the University of California and also completed courses in two Middle Western colleges —but health considerations made this step imperative.

After one year on his miniature farm, Fike has regained much of his lost strength and health and is successfully solving the many problems which confront the one-acre farmer. The past 12 months have been the happiest he and his wife have spent for many a year, while financial independence is just around the corner, closer than it ever appeared before to the former salaried college professor.

WORK OF ONE YEAR

The land cost $1450; a large chicken house and small dwelling were built by the owner; 500 hens were bought as baby chicks and raised to maturity; an irrigation system installed and many fruit trees and vines planted, as well as plots of grass and clover. The place could now be sold for upwards of $8000, while the hens are earning a monthly income of $150.

How many men who started on larger places, without experience, little capital and physical strength, have in one year made a better showing?

As in most cases of conspicuous success, a competent wife played an important part in Fike's achievement. "I'd never have had the courage to tackle our building program without the encouragement and help of my wife," confesses the Little Lander.

Mrs. Fike also is a college graduate, her Berkeley record being as admirable as the one she is making at Owensmouth. She loves her rabbits, bees, goats and garden of flowers and takes an active part in brooding little chicks and feeding laying hens.

"How in the world do they do it on one acre?" That is what the writer was curious to learn, as he inspected the miscroscopic plantation, which reminds the visitor of a full-sized farm viewed from an aeroplane, or through the wrong end of a telescope.

ESTIMATING POSSIBILITIES

The reader should bear in mind that there are 160 square rods in one acre. Visualize what can be grown on one square rod and then multipy by 160. After setting aside ground for garden and buildings, figure how much green feed could be grown on the remaining land and how many hens it would keep healthy.

Green feed is admitted to be the determining factor in egg production. Grain and mash can be shipped in, but succulent forage must be home grown.

In order to leave as much space as possible for crop production, Fike adopted the Charles Weeks system of keeping his hens indoors all the time.

"Cruel," you say. "Unsanitary." Perhaps — theoretically. In reality, a healthier, happier lot of hens is seldom seen than the one on the Fike place. They never (Continued on Page 9)

This garage house is to be replaced with a substantial dwelling and the poultry sheds extended.

The happy Fike family. Milk goats add interest and income to their San Fernando Valley acre farm.

Mrs. Fike enjoys taking care of the rabbits and goats. The goat stable at the left is made of two piano boxes. One back forms a wall, the other a roof.

Showing easy method of giving the hens chopped green feed, of which a ton is used each week. The efficient housing method renders outdoor yards unnecessary.

Recently the Fikes were awarded a prize for having the best planned and cared for acre farm in the Weeks Poultry Colony, which includes more than 100 enterprising acre farmers

ORCHARD and FARM
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"Cut Crops, Raise Prices," Says Solano Farmer

Radical Measures Recommended to Cure Agricultural Ills—"Let Consumer Take Care of Middleman"—Here's Food for Thought

By RAY C. GRUHLKE

WE READ and hear a great deal about the sad plight of the farmer: about low prices of farm produce and the danger to the country of the farmer's not being prosperous. Numerous plans are suggested for curing this condition, mostly by those who are not actually farming. Many of these plans have been put into operation, favorable laws passed, co-operative organizations formed, loans made easier and other helps extended yet many farmers are in as bad condition today as ever.

Standards of living are higher and farm produce brings more, yet the net profits of agriculture are less and constantly increasing numbers of farms are being abandoned, not by the inefficient, but by ambitious operators.

There is but one solution of the farmer's problem, and that is to curtail production. Answer the following questions if you can:

Why raise more food than can be sold at a profit? Why produce a surplus that either must be exported at a lower price than the home market pays or dumped at an unprofitable price?

Why make two blades of grass grow where but one has grown, when we cannot sell the one at a profit? Why should farmers' organizations favor land settlements by State aid, thereby increasing production and competition in an already overcrowded field?

Why should farmers—or farm organizations be interested in the profits of middlemen, in freight rates on agricultural products and cost to the ultimate consumer?

Why encourage agricultural extension which deals chiefly with increased production?

CUT PRODUCTION IN HALF

If farmers would cut their production in half but one year the following problems would be solved:

Farm profits, back-to-land movement, crop finance, land settlement, keeping boys on the farm, rural schools and marketing.

Glancing over crop marketing reports from year to year we note: "Egg prices rapidly falling on account of increased shipments." "Turkey market flooded, prices tumble." "Greatest production of apples in history; thousands of cars of fruit being turned into vinegar." "Lambs down; greatly increased shipments."

On the other hand we see such statements as these: "Frost kills 50 per cent of citrus crop; prices soar." "Potato shortage in the Northwest causes sharp rise in prices."

Does any farmer have to be told why prices are low? Yet every one of us struggles to increase his yield, a large majority attempt to sell everything they produce, regardless of quality. "If stuff is of poor grade, sell it anyway—get what you can. Flood the market and let the other fellow look out for himself."

A prominent farmer once said to me: "If a few of us would let our fields go to weeds for a season we would all make more money." Another big farmer stated: "If we produced just a little less food than the people needed, instead of a little more; if a few city people went hungry; we would have no worry about prices, nor would we have to waste our time forming selling organizations."

True. When we consider different groups of wage earners, we find each group in itself chiefly interested in its own existence, extremely selfish and even arrogant over others. I do not believe the farmer should be interested at all in the price the ultimate consumer pays, when the sum he receives for a product is such a small proportion of its ultimate cost. Assuming this to be true, then it is foolish for farmers to organize for the purpose of co-operative selling, when the plan includes in its program selling at a lower price.

In working for the California Farm Bureau Federation, I found that right in the heart of the raisin industry—in the very shadow of a big packing plant—90 per cent of the farmers were making hardly enough to pay even their taxes.

THE UNSALABLE SURPLUS

Assuming that farming is a business and that an individual farmer is a business man, with a small manufacturing plant, should he not operate his plant on a business-like basis? Would a successful manufacturer of pianos, for instance, make more pianos than he could sell? Would he fill his warehouses with musical instruments and then go around and try to sell them at any price he could get?

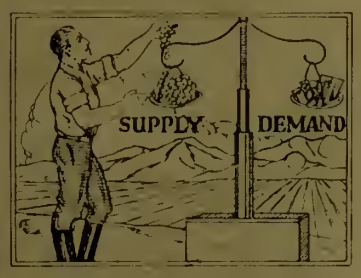
The success of the steel industry and the measure of prosperity of the country is based on unfilled orders for steel, millions of tons. How many unfilled orders have we farmers?

Warehouses bulging, packing plants crammed, cold storage buildings overflowing with agricultural products, yet a great university sends out men to urge greater production; to settle more city people on the land.

"Back to the land!" is the cry. Yes back to land; yet many tillers of the soil find their rest under the grass, rather than upon it. Years of wearisome toil, long hours of labor, the man with the lantern on the plow—these are not mere *(Continued on Page 10)*

What Do You Think About It?

IN publishing the accompanying article, ORCHARD and FARM neither indorses nor condemns the views of the author.



Many readers will regard some of Mr. Gruhlke's arguments as economically unsound. Comment and criticism from other thinking farmers will be welcomed.

To criticize agricultural extension work does not strike at the root of the overproduction evil. Agricultural educators are striving, not for greater production, but rather for more economical and more efficient production.

That arbitrary curtailment may be feasible, however, is indicated by the present program of the wheat producers and by the experience of cotton growers in the South.

We shall be glad to publish suggestions or comment from other readers who have made a study of the agricultural situation.—The Editor.

Points to Be Considered in Spraying for Orchard Pests

When Spraying Is Unprofitable—Importance of Thorough Application—Fruits and Pests Classified

By GEORGE P. WELDON

Pomologist Chaffey Junior College of Agriculture. Contributing Editor Orchard and Farm

THERE are few kinds of fruits which do not have to be sprayed or fumigated for pest control, at least after the fruits have been grown for some time in a community. In some of the newer fruits growing sections there may be comparative immunity from pests for a time and in such cases the need for spraying is not great.

Apples and pears, which generally are infested by codling moth, sometimes are free from this pest for a few years when planted in a new locality. As the distribution of such a pest is limited only by the distribution of its host and its spread depends principally upon the accessibility of newly planted orchards to others that are infested with the pest, there is every reason to expect an infestation some time or other, even though isolation may give immunity for a time.

Among the list of deciduous fruits that have not been sprayed generally in California might be mentioned almonds, cherries, figs, olives, plums, prunes and walnuts; while those that have required spraying annually are peaches, pears and apples. Apricots are not mentioned in either list, because they have been heavily and somewhat regularly sprayed in certain localities, while in other places they have been sprayed only when it seemed necessary.

It is not to be inferred from these facts that the kinds of trees on the list that have not received sprays regularly do not need to be sprayed, for in some cases they need it badly; but rather the particular things that trouble them are more or less seasonal in their occurrence, while in case of the trees in the other list certain pests always are present.

TIME ELEMENT IMPORTANT

"When shall I begin spraying my young orchard?" That is a perfectly natural question asked by the fruit grower, and it is a query that always cannot be answered assuredly and honestly. Of course, it is very easy for one with a knowledge of sprays and pests controlled by them to recommend that spraying be done when the first appearance of trouble in the orchard is noticed.

To some orchardists this early spraying is looked upon as a type of insurance. Whether it is or not will depend upon the nature of the pest that is present. In general, the first list of fruits given are little benefited by the kind of spraying that is done merely for insurance purposes. That is to say, there are certain pests which affect the kinds of fruit trees mentioned, which at times occur in such numbers that spraying is important to bring about their control, while in other cases of very light infestations of certain insects or infections of certain fungi, spraying would not pay.

Among the pests of almonds, cherries, figs, olives, plums, prunes and walnuts that the writer has in mind which would fall in the class of periodically serious pests may be mentioned: Red spider, black cherry aphis, cherry slug, fig scale, black scale, plum aphis, thrips, walnut aphis walnut codling moth, brown rot and shot hole fungus. There are certain times of severe infestation of such pests as these when spraying is imperative, but only when they become serious in the orchard should the grower be concerned about them. Any amount of spraying before they are present, as insurance, will result in little if any good and will only mean time and money wasted.

In the case of peaches, pears and apples, there are certain pests—such as codling moth, peach twig borer and peach curl leaf—which, once they are introduced into an orchard, always are present to such an extent as to constitute a serious menace. Annual spraying, therefore, becomes a necessity. Apple and pear growers of experience know that to neglect the spraying for codling moth even for one season would be disastrous; likewise, peach growers know that if they should fail to spray their orchards each spring with lime-sulfur both twig borer and curl leaf would develop to such an extent as to cause heavy losses.

Spraying of apple and pear trees may not be necessary until several years after the trees have been planted. In case of isolated orchards remote from other similar orchards, it may be many years before the codling moth or other pests will need attention, and until they come the orchard owner would lose money by spraying for their control.

Since apple and pear trees do not bear much until they are about five years old there is seldom need for spraying these fruits until they are at least that age. On the other hand, peach trees—because of the common occurrence of the twig borer and the curl leaf fungus—are benefited by an annual application of lime-sulfur in the spring, from the time they are one year old until they have served their usefulness in the orchard.

Neglect to spray the young peach orchard often will result in serious interference with the growth of the framework branches, because of twig borer injury to the growing tips. Then too, curl leaf may be so bad as to cause the leaves to drop in the early spring, when they are essential to the vigorous growth of the tree.

METHOD OF APPLICATION

The problems of when to spray and what to spray for are of no more importance than the problem of how to spray. There are so many failures in the control of dangerous pests because of a lack of knowledge regarding the way that sprays should be applied, that one often hesitates about recommending spraying unless it is possible to see that the work is properly done.

The one thing that should be emphasized in spraying is thoroughness. Thorough spraying involves, in the first place, satisfactory spraying apparatus. In this day of highly efficient spraying equipment, poor spraying is not liable to be due to any fault of the machine or the nozzle, but rather to the lack of care on the part of the man who holds the nozzle and whose important job it is to see that the spray is made to cover every part of the tree that is being sprayed.

To those who never have sprayed—and even to those who have done considerable of this work, but who have not observed very closely—it would seem to be a simple matter to wet every portion of the tree that is being sprayed. Yet if one will follow after sprayers when the work is going on it will be evident that the greatest of care is needed. In order that every side of a twig or leaf may be drenched with spray it is necessary to hit the twig or leaf from more than one angle, and the spray man who thinks that he can stand on the windward side of a tree and do a thorough job of spraying without entirely encircling the tree is badly mistaken.

Every grower would do well closely to supervise the spraying work in his orchard in order that there may not be a heavy loss from circle sprays.

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

Farmer's Viewpoint

FARMING BY PROXY.

Real dirt farmers can place much of the blame for rural difficulties upon the shoulders of "front porch poultrymen," "horse back vegetable gardeners," "absentee dairymen" and "telephone ranchers" of various kinds. When things go wrong, however, those who farm by proxy always lead the anvil chorus.

MILKING MACHINES HERE TO STAY.

Most of us recall the skepticism with which the first milking machines were received by dairymen. And, in truth, the original invention was rather a clumsy and unsatisfactory affair. Yet that was no reason for condemning the principle of the thing as many were inclined to do.

Now there are scores of successful milk producers in California who will testify to the practicability and efficiency of the machine method. Even in the Imperial Valley, where many of the dairymen get along with the minimum of equipment, many outfits have been installed.

Another interesting angle is the increasing use of machines by owners of purebred and registered stock, and in one such case the first effect noted was a substantial increase in herd production.

Milking machines and other modern equipment are doing much to lift the burden of drudgery from the shoulders of the dairy farmer. And anything which makes dairying more attractive contributes to the general welfare and prosperity.

IS A SURPLUS UNDESIRABLE?

At least one agricultural leader takes violent exception to the principle of reducing production, as suggested by Ray Gruhlke in this issue.

James R. Howard, former president of the American Farm Bureau Federation, in a recent address, said: "I am a firm believer in surplus production on farms and in factories and mines alike. The cave man progressed only because he produced a surplus.

"Living standards are never advanced except by production of surpluses. People too often forget this. But a surplus of anything is of no account unless it can be transported from producer to consumer.

"Transportation, then, and not alone the product of labor and capital, is the yardstick by which human achievement is measured."

And we might add that distribution (closely allied with transportation) is the other link in the chain. In almost every case where farmers are producing at a loss, it will be found that consumers in distant centers are paying exhorbitant prices for the same commodities. A constructive, rather than a destructive, policy would appear most likely to solve farm problems.

PERMANENT SHEEP FARMING.

Commenting on the lamb losses suffered the past winter by California wool growers, as a result of dry weather and consequent feed shortage, Prof. Gordon H. True of the University Farm calls attention to the fact that many sheep men are apt to conduct their business in a temporary and migratory manner, without permanent quarters or an assured feed supply.

Sheep feed is largely a by-product, consisting of provender which otherwise would go to waste. This makes for low cost, but affords no insurance against shortage of supplies, which may result from unfavorable weather conditions. Many stockmen like to gamble on the weather and market, but taking such chances seldom pays in the long run.

Why not build up a permanent system of sheep farming? Already much wool and mutton are profitably produced on this basis; an intelligent extension of the industry is what is needed. Successful coyote campaigns are paving the way for a larger utilization of the ranges, while orchardists and general farmers are learning how to raise wool and mutton in connection with fruit and field crops.

Pasturing orchards with sheep is supplanting cultivation in some cases—a saving in fertilizer bills as well as labor expense being effected.

What's New? — Keeping Abreast of Agricultural Progress

Local Lamb Crop Short

THE shortage of sheep and lambs on feed in California is estimated unofficially at 50 per cent, according to the U. S. Department of Agriculture. The light lamb crop is attributed to lack of feed, due to dry weather. In some sections lambs are being killed to save breeding stock.

The 1924 California lamb crop will be five to nine weeks late, it is estimated.

What Ails the Chickens?

LACK of good green feed—caused by cold, dry winter weather—is said to be the cause of a widespread nutritional disorder which recently affected Southern California poultry. Some poultrymen—notably those in the Van Nuys district of the San Fernando Valley—have taken out green feed insurance by arranging with alfalfa growers for a regular supply of this standard legume, freshly cut.

Bench Grafters Fight Blight

TO develop a system of bench-working blight resistant pear stock, some co-operative work is being carried forward at the Clarksburg Nursery Company plant near Clarksburg (Yolo County) with the agricultural experiment stations of California. It is planned to graft Old Home cions on Ussuriensis, French and Jap root for the coming season. The graft is planted deep enough in the nursery rows to allow the blight-resistant stock to root itself, thus producing a tree with blight resistant stock going into the ground. Later when the tree is planted in the orchard it is top-worked to desirable varieties of commercial pears, notably the early Bartlett, already extensively planted in the Holland Land Company orchard.

Long Pruning Apricots

A LONG pruning test conducted during the past three years in the apricot orchard of Franz Borchard, near Zelzah, San Fernando Valley, shows remarkably favorable results in favor of this system of trimming fruit trees, according to V. F. Blanchard, assistant farm adviser of Los Angeles County.

Long-pruned trees are twice the size of those which have been headed back in the usual way, while the root growth averages 14.7 inches on the former trees, compared to 10.1 inches on the latter. This indicates, Blanchard points out, that reducing a tree's foliage stunts the roots, contrary to the popular idea that cutting back the top stimulates growth.

Use for Covered Wagons

BUCKEYE farmers, under the leadership of the Ohio State Grange, are using covered wagons, drawn by two and four-horse teams, in a tax reduction campaign. The canvas covers bear the following inscription:

"Let's go back to the ways of our fathers; simplicity, honesty and economy in Government."

Canvas horse covers are lettered with this invitation: "Get in the fight for lower taxes and less legislation." Many farmers' autos bear these inscriptions, while school children carry the following sign in Grange parades:

"Don't pass your debts on to us—let every generation shoulder its own burdens."

The Governor of the State, Mayor of Cleveland and many other prominent citizens have driven the Grange's covered wagons in parades. At the end of the campaign the wagons are to be shipped to Washington and used in a big demonstration before Congress.

Dairy Day Celebrations

"THE time will come, we hope, when every California county, which has two or more dairymen, will give one day a year to celebrating the fact," prophesies Sam H. Greene, secretary-manager of the California Dairy Council, who recently was appointed a director of the California State Board of Agriculture.

"Humboldt County has celebrated Dairy Day for 17 years; Imperial County has established the custom, and Stanislaus is considering it," continued Greene. "Dairy Day is not only an advertisement of the dairy business to the general public, but to the dairymen themselves. When they and their families can lay down their work for a few hours and get together, as they did at El Centro recently, they get a better idea of what a worth-while business dairying is."

In addition to speeches at the Imperial celebration, there were the livestock judging, essay, women milking and milk production contests.

Pickle Men Want Contracts

LOS ANGELES pickle manufacturing concerns are anxious to secure more growers' contracts, according to R. W. Hodgson, farm adviser, who has placed his office at the disposal of cucumber contracting parties in order to assist in building up a promising agricultural industry. A number of farmers in the vicinity of Zelzah, San Fernando Valley, have found cucumbers a very profitable crop and are planning to increase their acreage materially.

The following prices are offered by one of the larger pickle companies:

No. 1s, 1 to 3½ inches long, practically perfect specimens, $60 a ton; No. 2s, 3½ to 5½ inches, $25; No. 3s, over 5½ inches, $10.

Eight tons per acre, 50% No. 1s, is an estimated average yield. Cost of production is not materially greater than for melons, picking being the principal expense. Special attention to irrigation is necessary. Nemotode and blight are the two chief cucumber pests.

Dairy Dinner Pays Well

THE Inyo County Cow Testing Association recently raised some much needed money by giving a dairy dinner at the West Bishop Farm Center Hall. The feast was prepared by the farmers' wives and each dish contained some dairy product. Dairy posters decorated the walls, and dairy speeches were made. The price of the dinner included tickets to a dairy dance, which followed the meal.

Rats Becoming Serious Pest

COMMENTING on the recent appropriation by San Francisco of $5000 to exterminate rats, and Monterey's anti-rat campaign, the State Board of Health declares that:

"Rats are invading California fields and becoming so numerous in some farming districts as to be a considerable factor in the destruction of crops and food products stored in warehouses, both in city and country. Seacoast and interior cities as well are suffering from hordes of rats that are invading both business and residence districts."

Avocados in Santa Clara

AVOCADO culture in Santa Clara County, which has been considered almost impossible, owing to the frost hazard, recently has become a reality. Certain varieties thrive in various points of the valley, particularly in the foothill region, where the temperature infrequently descends to the freezing point.

One hundred avocado trees now are growing and bearing fruit in an orchard in Los Altos. The following varieties are grown: Blakeman, Challenge, Colorado, Dickinson, Lyon, Perfecto, Sharpless and Spinks. Trees of Mexican nativity bloomed recently.

Several varieties of avocados are fruiting in San Jose.

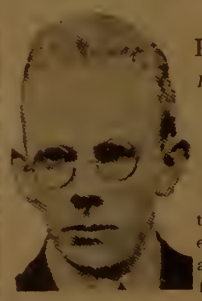
Revival After Dairy Show

A VERITABLE dairy revival in Yolo County followed the Pacific Slope Dairy Show at Oakland last fall. A 200-acre barley farm is being planted to alfalfa, preparatory to converting it into a dairy farm, and definite plans have been made to subdivide large grain ranches into 20-acre dairy farms.

The first steps toward this dairy project were taken at a "Pay Roll Dinner," which was put on at Woodland by Fred Shaffer, secretary of the Yolo County Board of Trade. At this gathering the fact was brought out that Yolo has 168,000 acres planted to wheat and barley, 8000 acres to beans and 18,000 acres to vegetables.

Attention also was called to the fact that while Yolo County has 11,000 beef cattle and 26,000 hogs, it has only 7100 dairy cows. It was agreed that the best way to increase the agricultural revenue of the county was to grow silage and leguminous forage crops and convert them into milk, butter and cheese via the cow route.

"THEY SAY"



WM. M. REGAN

PROF. W. M. REGAN

Head of Dairy Production Dept., University Farm, Davis

EVENTUALLY I expect to see the dairy industry of California concentrated principally in the Coast and mountain counties—the former for milk and the latter for cheese production or other factory enterprises.

It would seem a logical development for our warm, productive valleys to be devoted largely to intensive agriculture and horticulture; undoubtedly we shall have more and more small farms of this kind.

Dairying, however, seems best suited to a cool, moist climate where green feed is plentiful. Del Norte is an example of an ideal dairy county, as yet almost undeveloped, because of inadequate transportation facilities. No doubt it will become a dairy center like Humboldt.

It will be many years, of course, before the dairies in the great valleys are even partially supplanted. Meanwhile, among other things, we must improve our feeding methods and also conquer the tuberculosis situation.

Hundreds of thousands of dollars has been spent upon research and experimental work in horticulture, but comparatively nothing has been done by the University to solve dairy production problems.

We need more definite knowledge concerning the relative value of hay, ensilage and pasture. Also, we need bacteriological investigations of different kinds, it is possible our losses from bloat could be reduced or prevented as a result of such research work. There are any number of problems to be solved, and we want the co-operation of all the breeders and milk producers in working them out. California conditions are peculiar; therefore, we cannot depend upon conclusions reached in other States.

Better Cotton for the Imperial

Farm Bureau Takes Lead in Constructive Program for Coming Season—Acala Variety Is Recommended

THANKS to the Imperial County Farm Bureau, it is evident that little if any mixed planting of cotton will be done this year. If the Farm Bureau accomplishes nothing but to bring about the use of pure seed of one variety in the valley, it will have rendered service of inestimable value, in the opinion of agricultural leaders.

A vigorous campaign is being waged by the Cotton Growers' Department to induce every farmer to use pure Acala seed, this being not only the most productive under Imperial Valley conditions, but also the only kind of which sufficient approved seed can be secured. The Coachella Valley, "sister empire" of Imperial, will benefit by this development, inasmuch as the Coachella will supply most of the seed, the Farm Bureau having arranged to handle it at a nominal price.

PAST EXPERIENCE COSTLY

"No public spirited grower could fail to heed the plea for pure seed," said Secretary Jenkins of the Farm Bureau recently. "The experience of farmers producing other crops has shown the importance of co-operation along this line. I feel sure any cotton producer who makes a serious study of the matter will end his wholehearted support to the movement. In fact, I know of several backers of the project who will suffer financial loss because they had expected to sell seed of other varieties."

Other cotton growing districts can take an object lesson from Imperial Valley's past experience. As pointed out by one of the largest producers in the Valley, Imperial cotton has had a black name for the past four years. Many mills have refused to buy the Valley product and the result has been unsatisfactory marketing conditions. As many as 50 different types have been grown.

Some growers have held the opinion that cotton varieties could not become crossed unless the fields were very close together, on the theory that the pollen of the cotton flower is sticky and cannot be borne by the wind.

But according to W. B. Camp, expert in charge of the U. S. D. A. Experiment Farm at Shafter (Calif.), the pollen is carried by bees and other insects as far as a mile and a half, and when one variety is crossed with another, the result is the production of many varieties, all of which are inferior to the parent plants.

GREAT PUBLICITY CAMPAIGN

The gin too, is a great factor in mixing different sorts, because the grower frequently receives as much as 25 per cent of other seed when his own is returned. In an experiment, 20 pounds of seed was colored and put through the gin. A week later a number of the seed were found, indicating that any one gin may remain for several days, and thus be widely distributed.

In connection with the pure seed campaign, local advertisements were published in the papers of the valley by the Farm Bureau, and large numbers of cards were printed and placed in the windows of business houses and banks.

Another aspect of the cotton work is marketing, which includes proper grading and classifying. It is hoped to perfect an organization whereby the growers, at a cost of perhaps $1 a bale, may have the services of an expert cotton grader and classer, a plan which in the opinion of leading producers may save as much as $10 a bale.

It is proposed also to take full advantage of the work of the Government Crop Reporting Service, so that the members at all times may be correctly informed as to market conditions and thus sell their cotton to the best advantage.

The great importance of proper grading, as pointed out at a recent meeting by C. R. Hughes of Blythe, an experienced cotton man, is in supplying to the mills a product of uniform staple. The manufacturers set their machinery for a certain length, and all the short staple falls through and is wasted.

COACHELLA TAKES LEAD

The same authority has emphasized the importance of picking the cotton dry. It should be allowed to remain on the stalks until thoroughly dried and bleached by the sun. Pickers should be watched in order to prevent the inclusion of trash and dirt, which some are inclined to add because they are paid by weight.

The experience of Coachella Valley growers has been a great incentive to the people of the Imperial Valley to carry out the Farm Bureau program. According to President Kellar of the Coachella Cotton Growers' Association, his district has made rapid strides forward since first obtaining Acala seed from the Government Farm at Bakersfield. Not only has the quality been improved, but there has been a great increase in yield as well.

Coachella growers have secured Acala yields of from 1¼ to 2 bales per acre, and in some cases where growers have "stubbed" their cotton as many as 12 bales have been grown on five acres, and 35 bales on 17 acres.

BANNER YEAR PREDICTED

By "stubbing" is meant allowing the cotton to volunteer a second crop. The stalks are cut back to the ground, the roots allowed to remain over the following season, and a new crop produced from adventitious buds.

A vast improvement in cotton conditions in the Imperial is expected to result from the present movement. Farm Adviser Garthwaite has collected a great deal of information on fertilization and many growers will attempt to increase their yield per acre by this method. Market prospects are uncertain at this time, of course, but are considered good.

It is pointed out that the prime requisites for success are standardization, improvement of quality and increase in yield per acre, rather than an increase in acreage. The Farm Bureau is putting forth every effort to carry out this fine program.

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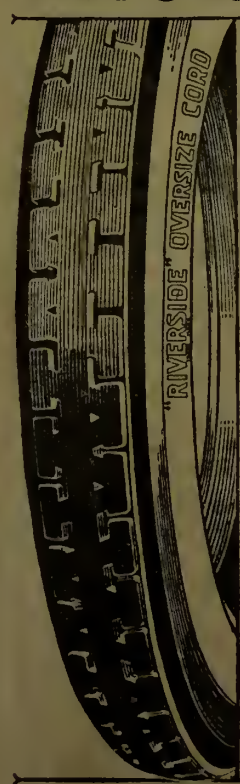

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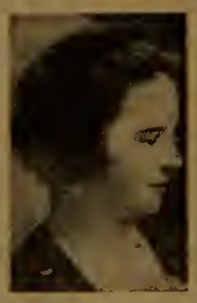
Your Garden of Flowers

By HELEN TEMPLE

"DAMPING OFF"—CAUSE AND CURE.

"Three boxes of my fine aster plants "damped off," recently complained an earnest flower enthusiast. "What made them do it? And what can I do to stop it this year, again?" she asks. I feel deeply sympathetic, having myself experienced the sorrows of "damping off."



HELEN TEMPLE

The usual causes of this trouble are: Overwatering, insufficient air, poor soil, insufficient light, crowding and shallow seed boxes. It also is sometimes caused by the use of soil which has been used too often for the same purpose.

Use clean, new sand and soil for seed boxes. If the soil is doubtful as to purity, scald seed boxes a few hours before planting. Use boxes of sufficient depth and be sure to use at least one-half sand to insure good drainage.

Water young plants in the morning and never at night. Provide an abundance of sunshine and ventilation, but do not place the boxes in a draught.

As soon as the seedlings are large enough, transplant to larger boxes or outdoors. Avoid crowding of the young plants. I find many seedlings ready for transplanting as soon as two or three true leaves have developed.

TREATMENT FOR ROSE MILDEW

How often, oh, how often, I am questioned about rose mildew. It must be a popular pastime among roses. It is especially popular along the Coast with many of the finest varieties.

Sudden changes of atmosphere, watering at night, poor soil, poor drainage and poor circulation of air, are the usual causes of rose mildew. When roses are planted among close-leafed shrubs or cypress, where the air is shut off, mildew often is found.

To prevent this disease, find the causes and eliminate them. A rose garden, where location and soil is especially suited to this flower, is most desirable. Avoid overshadowing trees and closed spaces where the air does not circulate freely. However, roses which already have become infested with the spores of this fungus call for frequent dustings of sulphur and a stirring of the soil about the roots.

All infested bushes should be pruned quite severely at this time of the year. Do not use the cuttings from infested bushes for new plants. Burn them together with all trash and leaves about the bushes.

WHAT TO PLANT NOW

In Southern California, where the frosts of our interior valleys do not touch, outdoor seed sowing of hardy annuals and perennials should begin. Seedlings of all kinds should be put into the ground with discretion. Tender varieties need protection.

Sow seeds of cosmos, snapdragons, marigolds, sweet peas, poppies, wild flowers, scabiosa, nigella, larkspurs, mignonette and candy-tuft outdoors in their permanent location. Sow pansies, shasta daisies, columbines, penstemon, gaillardia, begonias, coreopsis, lobelia, stocks, hollyhocks, salvia and balsam in seed boxes this month.

January and February seed boxes brought us the young plants ready for setting out at the time when most gardeners were sowing the seed and as a result our flowers were two months earlier. We had them almost as late as the last fall flowers, by keeping them picked regularly.

Inter or seed sowing is principally confined to seed boxes at this time of the year. A row of sweet peas in a sheltered situation may be attempted with reasonable success, even in the interior valleys.

BULB PLANTING SUGGESTIONS

Gladiolus our most reliable bulbous plant, should begin its year right now. Plant a row today, then wait two weeks and plant another row, following this plan until August or September.

The most effective planting of gladiolus—in fact, of any flowering plants—is where there is one variety in each row. First, plant a row of pink and white, then one of lavender, and so on through the rainbow. And do not forget to add the Primulinus hybrids. Last year our Primulinus hybrids of yellow and buff reached a height of five feet or more. They make wonderful cut flowers.

Other bulbs to be set out now are the tuberoses, narcissus, caladium, amaryllis, German iris, lilies and cannas. Hyacintius Candicans is a handsome, rank-growing bulbous plant, blooming in the summer. The flowers are bell-shaped and are borne in great clusters along stems four or five feet long. Being pure white, the Hyacinthus Candicans is very effective if planted in the center of a bed of bright pink or red gladioli.

MAKING A FEBRUARY LAWN

Lawns sown in February usually are very presentable patches of green before April turns the corner. We have sprouted weed seed for two months in preparation for seeding our lawn. It is much easier to pull and cut weeds before the lawn is sowed, although we always find a few weeds that waited for the lawn. However, the weed-sprouting process is quite important for lawn success.

The soil should first be plowed, if possible. A small lawn space yields itself to the spading fork, but one cannot do justice to a large one with a hand tool. The soil should be loose and all clods broken up thoroughly for at least six inches below the surface.

Level the ground, raking the surface perfecly smooth and rolling with a hand roller. Rake lightly again, then sow the lawn mixture evenly. Roll the surface again, but do not rake. After seeding, sprinkle the soil thoroughly with a very fine spray. Keep the ground wet until the surface is covered with tiny grass, then have it just moist enough to keep the grass growing. Never use a heavy spray or stream on a newly planted lawn.

For lawns, many people buy bluegrass or a mixture of bluegrass and clover. The latter combination is usually very satisfactory, but the bluegrass alone is often disappointing, as it loses color in hot weather and takes two or three years to form a close sward.

The most satisfactory lawn is one which stays green and inviting the year around. Seed houses put out a lawn combination grass which combine all of the fine-leafed grasses that do best at different times of the year, thus providing a presentable lawn the year around. New lawns require about two quarts of seed for a plot thirty by thirty feet. Replanting an old lawn requires only half as much seed.

IMPORT GERMAN CANARIES

Canary birds from the Hartz mountains, Germany, are imported into the United States in small wooden cages made by hand. These birds are called "rollers" because of the peculiar way in which they are trained to sing. They retail in California at $2 to $5 more than domestic canaries. Many of the German birds imported this year are brown in color.

Planting Pointers

IN reply to several inquiries from F. C. Witzel, San Mateo County, the following information is furnished by Ralph D. Cornell, Los Angeles landscape architect.

My recommendation for a windbreak planted in the position indicated on your plan would be either the Catalina cherry (prunus integrifolia) or the California Mountain cherry (prunus ilicifolia), both of which are excellent and thrive in your locality. Instead of planting them right against the house, I would suggest that they be put on the property line. They will grow fifteen or twenty feet high, if permitted, which is ample for the space they will occupy. Either the Monterey cypress or one of the privets would form the necessary windbreak, but would not be as attractive as the cherries and would be more difficult to control.

Fruit trees that thrive on adobe soil include the citrus fruits, loquat, deciduous fruits, such as plums, prunes, cherries, figs and particularly the pear, also persimmons. Almonds, chestnuts, walnuts and pecans will thrive in heavy soil.

SMALL FAMILY ORCHARD

For a small family orchard the above fruit trees may average eighteen to twenty feet apart, although they are generally planted more thinly than that in commercial plantings. Walnuts should be set about fifty feet, chestnuts thirty and almonds and pecans about twenty feet apart.

The La France red raspberry is an excellent berry bush for your fence, also Crandall's Early and the Mammoth Thornless blackberry. Gardens dewberry and the loganberry.

The Eureka walnut would probably be best for your location, since it blooms late and is not so susceptible to killing frosts. The Placentia is a standard sort and of excellent quality, but blossoms earlier than the Eureka and is not so dependable in regions having late frosts. Franquette and Mayette are both good and are popular with Northern growers where there is liability of late frost.

ALMONDS EARLY BEARERS

Almonds produce more quickly than walnuts and the crop is valuable. The trees are much smaller than walnuts and do not require the same space for their development. Almonds are, however, among the earliest of our trees to bloom, therefore the crop often is killed by late frosts in regions where the latter occur. Almond trees sometimes bloom in January, if the winter has been warm; then, a late frost and the crop is gone. The trees, themselves, are quite hardy.

If you retain the central walk, as your plan shows, you should by all means eliminate the flower bed, which you have shown in the center of the walk. However, would it not be well to leave the walk out altogether, and plan to use the drive as an approach to the house? This would permit an unbroken lawn in the center of the yard, with appropriate shrubbery planting at the sides. If the walk is omitted, I would suggest a low hedge along the front property line of some such plant as the Roman myrtle (myrtus communis).

The planting should be arranged approximately as I have indicated on your plan, at the sides and back, with the lawn unbroken. Do not forget that the house is the largest object in the composition and that the planting should serve as decoration to it.

Long and Short Pruning

F. A. ELLS OVER, San Bernardino County, wants to know the difference between long and short pruning.

Long pruning is a term used to designate a new system, which in recent years has been adopted by many growers of peaches and apricots. Short pruning applies to the old system of topping trees by cutting off the main framework branches at some distance from their extremities.

The long system, when properly followed, results in trees with five or six main framework branches, and the pruning each season consists principally in the removal of strong, growing branches that are competing with the framework branches. The fruiting limbs consist of hanging branches growing from those that form the framework. The effect of long pruning is heavier production of fruit and less sappy wood growth.

Either your farm adviser or your county horticultural commissioner would be glad, I am sure, to help you with your pruning problems.—GEO. P. WELDON.

FRUIT GIVES WAY TO POULTRY

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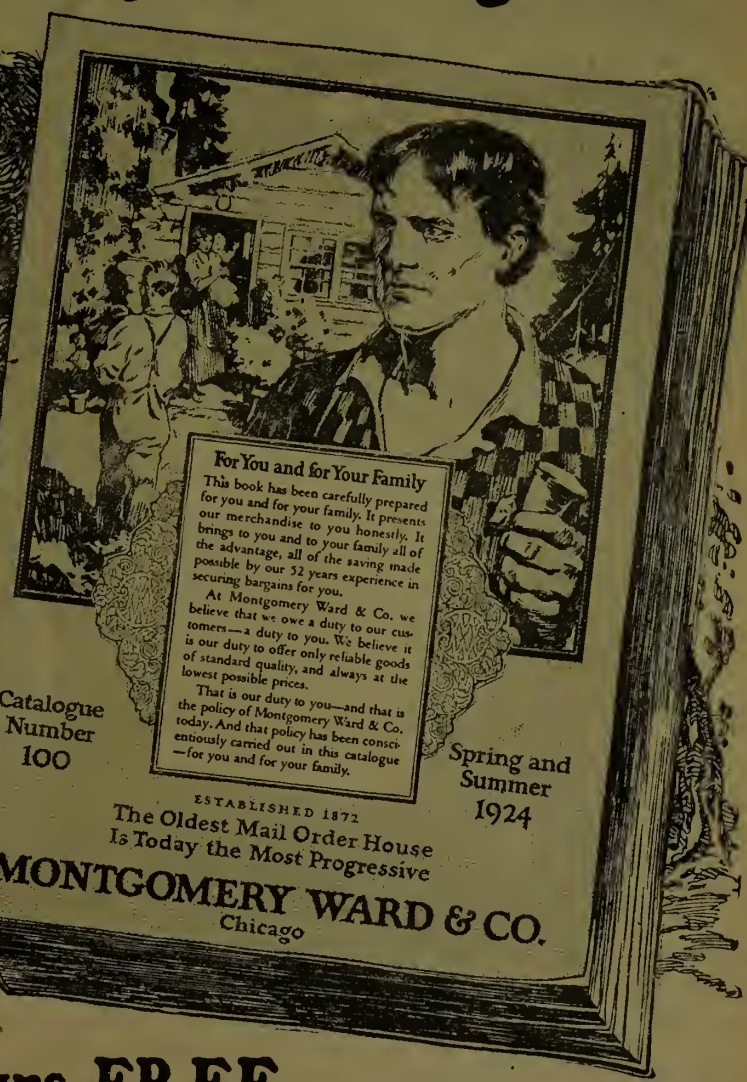

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OUR 1924 CHICKS—Prices, Quality—Will delight new and regular customers alike. Capacity 300,000. White, Brown, Buff Leghorns; Anconas, Reds, Barred, White Rocks; Minorcas, Wyandottes, Brahmas, Andalusians, Orpingtons. From some of world's greatest layers; reasonable. Reduced booked ahead. Nearly half-booked for most Winter, Spring weeks. They prove profitable. "Never saw such size, vigor, rapid growth, egg-yield." Write for proof. PROFITABLE POULTRY, 13 North Fair Oaks, Pasadena, Cal.

CERTIFIED White Leghorn quality chicks from selected free-range, heavy-laying, utility hens mated to double pedigree cockerels with authentic trapnest records. Our breeding flocks are inspected and accredited by the Sonoma County Farm Bureau. Safe arrival and full count of live, vigorous chicks guaranteed. Accredited "AA" grade chicks at single "A" prices. Send for catalogue and attractive spring prices. MUST HATCH INCUBATOR CO., INC., the World's Largest Electric Hatchery, 432 7th St., Petaluma, Cal.

WEBB'S WHITE LEGHORN CHICKS—You will get plenty of eggs if your chicks come from WEBB'S CACKLE FARM. 2600 choice selected hens mated with cockerels from trapnested hens with records of 200 and better. 12 years SANTA CRUZ largest poultry breeder. Prices 15c up to Feb. 1st; 12½c from Feb. 1st to March 15th, and 10c thereafter. A. M. WEBB, 227 Parkway, Santa Cruz, Calif.

BABY CHICKS—Only the better grade at popular prices—Hanson White Leghorns, Brown and Buff Leghorns, Reds, Barred Rocks, Anconas, Black Minorcas, Blue Andalusians, White Wyandotte and Buff Orpingtons. Order early. Free folder. McDONALD POULTRY RANCH AND HATCHERY, Route 1, Box 246, San Jose, Calif.

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BETTER BABY CHICKS from high grade stock. White Leghorns from excellent matings including Hanson and Tancred strains. Also R. I. Reds and Barred Rocks every Tuesday. Anconas, Black Minorcas, and White Rocks in season. Write the SANTA CLARA VALLEY HATCHERY, 1049 Lincoln ave., San Jose, Calif.

PULLETS! PULLETS! Large heavy type. White Leghorn Pullets hatched by Bolfing's Poultry Farm, from Trapnested, pedigreed, proven producers. Booking orders now. Eight weeks old February and April batch. 80 cents each, any amount. MRS. H. L. GILLESPIE, Tres Pinos, Calif.

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PEDIGREED S. C. W. Leghorn Baby Chicks and hatching eggs. Our large selected hens are matched to Hanson's high pedigreed cockerels. Prices reasonable. DINIC HATCHERY, Petaluma, Calif.

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BABY CHICKS—Send for price list. SANTA CLARA POULTRY YARDS, Breeders and Hatchers, Oxnard, Calif.

POULTRY

ACCREDITED BABY CHIX—White Leghorns and R. I. Reds hatching every Sunday. Also all the standard varieties in our "quality" chix, the kind that live and thrive because of strong parentage. Careful hatching and packing for shipment. Our "quality" White Leghorns are from flocks averaging from 201 to 250 eggs per hen per year actual records. We stand behind our "quality" chix as well as the "Accredited." Remember, we guarantee full count of live chix at destination when we ship via express. Early orders get the preferred dates. Act quickly. ARTESIA HATCHERY (Electric), Artesia, Calif.

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$16 hundred, delivered. No other kind but thoroughbred Buffs from prize-winning egg layers. No pullets used. No artificial lights. Free range. Glad to send free catalog. ORINDA PARK BUFF LEGHORN HOME, Berkeley, Calif. Route 1, Box 496-E.

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WHITE PLYMOUTH ROCK and White Leghorn BABY CHICKS, Hatching Eggs and Breeding Stock. High quality, low prices. PURE BREED HATCHERY, Box 69, R. 1, San Mateo, Calif.

HIGH-GRADE CHICKS from selected Hoganized stock at reasonable prices. White, Brown, Buff Leghorns, Rhode Island Reds, Barred Rocks, Anconas and Black Minorcas. Union District Hatchery, Los Gatos, Calif.

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CASA DE ROSAS TURKEY RANCH, Carmel-by-the-Sea, Cal. Engage your GOLDBANK BABY TURKS now. Special reduction chicken sale, prize stock. Creation Brown Leghorns, pens, chicks, eggs. Also Toulouse geese and Carneau pigeons.

WE ARE BREEDERS of French, Mexican and American Wild-Blooded Turkeys, imported stock. Eggs from the different varieties in season. Book your orders now, as each year we are sold out early. JERSEY STOCK FARM, 11534 San Fernando Blvd., Route 3, Box 1386, Burbank, Calif.

WILDBLOODED BREEDING TURKEYS—Toms and Hens. Baby turks and eggs reasonable prices. JENKINS, the Veteran, Burbank, Calif. R. 3, Box 1176.

NURSERY TREES AND PLANTS

AVOCADO TREES FOR SALE—
Lyon, Prince, Los Angeles, Dickey A, Dandelyon, Fuerte, Puebla, Ganter, etc. I keep all standard sorts.

Lyon, upright grower, early bearer, large, hard-shell fruit, highest in official analytical test—oil 26.89%, protein 4.?7%, seed 9.7%. The Lyon grows upright and can be planted from 10 to 12 feet apart each way, from 300 to 400 trees per acre.

Prince, the only hard-shell fruit which ripens in October, November and December, "Prince of the Holidays," excellent shipper; rich flavor, no fiber and small seed. Dickey A, richest flavor and smallest seed. Fuerte and Puebla, both leather-skin sorts, quite cold-resistant. Ganter, thin skin, fall fruiting, most cold-resistant sort.

Visitors welcome on week days only.
A. R. RIDEOUT,
Rideout Heights, Whittier, Calif.

BERRY PLANTS—"Advance" blackberries. We started picking this variety commercially April 16th this past season. The berries brought $9 per crate wholesale. We have 19 acres of "Advance." Write for catalog. We also offer Loganberry, Dewberry, Red and Blackcap Raspberry. STRAWBERRIES—Klondyke, Carolina, Progressive Everbearing. If you want strawberries this summer don't delay planting. Visit our 30 acre berry field. PRESTON & KNOTT, Buena Park, California.

FIGS—Planters of large or small acreage of figs will find it to their advantage and profit to get in touch with us. We have 200,000 fig trees grown by us, near San Fernando—Kadota, Black Mission, Black San Pedro and Brunswick. Land is to be subdivided this year and we must move them. KELSEY-OXFORD NURSERIES, Valley Blvd., 2 miles west of El Monte, Calif. Phones: Alhambra, 919J3, Res., 763R1.

CONCORD GRAPEVINES—We can supply the world with Eastern and California Concord (Pierce-Isabella) vines of fine quality, grown by us at San Fernando. These are the money-makers for localities adapted to them. KELSEY-OXFORD NURSERIES, Vally Blvd., 2 miles west of El Monte, Calif. Phones: Alhambra 919J3; Res. 763R1.

BEFORE YOU BUY! Get our prices on fruit trees; grapevines, both domestic rooted and grafted on resistant root, berry plants, etc. We will save you money in addition to supplying you with fully guaranteed stock. Write us list of your wants and request price list. Wholesale and retail. J. F. MILLER & SONS, Healdsburg, Calif.

TREES, PLANTS, SHRUBS, guaranteed, direct from grower. Lowest prices. New, Dr. Worcester hardy peach and Ohio beauty apple. Planting book FREE. WOODLAWN NURSERIES, 937 Garson Ave., Rochester, N. Y.

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GIANT WINTER RHUBARB ROOTS—Bear in 90 days. $1.25 doz., $7.50 cwt., prepaid. FORREST WALKER, Puente, Calif.

RECORD bud hachiya persimmon trees on lotus roots, also dahlias. ALCORN'S NURSERY, Fullerton, Calif.

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OUR BACK-TO-LAND PLAN—We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land; deep, rich, tried soil, complete irrigation with cheap water, thorough drainage; rail, water and highway transportation. Write owners. SUTTER BASIN COMPANY, California Fruit Bldg., Sacramento, Calif.

POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, California.

MUST HAVE CASH. Biggest bargain in California. 90 acre well improved farm, Humboldt County, $3000 cash, clear deed, owner. J. D. WESTENHAVER, 210 Main st., Huntington Beach.

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CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

FARM WANTED—Immediately from owner. Send particulars. MRS. ROBERTS, Box 53, Roodhouse, Ill.

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FOR SALE. Best thoroughbred Airedale dogs; valuable homestead relinquishment, big low-grade gold mine; summer cottages for rent. Correspondence solicited. THE LION KENNELS, Wawona, California.

FARM TRACTORS, MACHINERY

NEW and rebuilt implements at special prices. Call and see them. ARNOTT & CO., 114 S. Los Angeles St., Los Angeles.

RABBITS AND PIGEONS

PEERLESS rabbit hutches; convenient, sanitary, fully equipped, prices low, freight prepaid. J. K. DOLAN, 1836 E. 25th st., Oakland.

PIGEONS—Selected Silver King youngsters for sale. JAS. A. AVERY, Napa, Calif. R. R. 1, 104.

Strawberry and Blackberry Plants

STRAWBERRY PLANTS—Carolina, W... Everbearing. No. 1 plants ... Write for prices. BROYLES BERRY ... Van Nuys, Calif.

50,000 CHOICE inspected ... Unusual low price. HARRY LA... Route 4, Salem, Ore.

Cory's Thornless Blackberries. For ... old plants write Wm. Mortensen, Lod...

Cory Thornless blackberry plants $6.00 ... 100. Myers & Little, Box 64, Lindsay...

BULBS AND SEEDS

BURBANK SEEDS are standards ... over. The wonderful new ... "Combustion," "Sunshine" and "Molten ... surpass all easily grown annual ... their brilliant all summer color ... have ever been produced or introduced ... known during the past 20 years ... than 100,000 people during the past sum... have admired them on my grounds. ... Bulletin 67. Luther Burbank, Santa Rosa...

SOUR ORANGE SEED for sale. Genuine ... pendable grade A seed. Costs ... cheaper in the end than the cheap ... grades. DR. L. A. SHATTUCK, ... Florida.

ALFALFA SEED—Original Hairy Peru... When writing state amount wanted. ... TURNER, Yuma, Arizona. 23 years on Y... Valley Farms.

GLADIOLUS, beautiful colors, 100 b... and 25 one-year old bulbs, $... ... 15c. PHIL. LAESER, Sun Prairie, Wis.

HELP WANTED—Instruction

EARN $110 to $250 monthly, expenses pa... Railway Traffic Inspector. Position ... anteed after completion of 3 months' h... study course or money refunded. Ex... opportunities. Write for Free Booklet ... Stand. Business Training Inst., Buffalo, N...

WANTED—Women, girls. Learn gown... ing at home. Many openings. $35 w... Learn while earning. Sample lessons f... Write immediately. FRANKLIN INSTITUTE, Dept. H-586, Rochester, N. Y.

LIVESTOCK—Sheep, Goats

PUREBRED TOGGENBURGS from rece... imported stock. Heavy milkers. ... under ideal conditions. Sure to please. ... YON GOAT RANCH, Redlands, Calif.

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LEAF TOBACCO—Chewing, five pou... $1.75, ten $3.00; smoking, five pou... $1.25, ten $2.00; pipe and recipe free ... when received. CO-OPERATIVE FARM..., Paducah, Kentucky.

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California White Leghorn Breeding Farm
SUPERIOR ENGLISH LEGHORNS, INTERNATIONALLY KNOWN
THE WORLD'S BEST
Write for mating list on pedigree chix and hatching eggs. ... chix sold for February. One half our output for M... sold. Hatching eggs now for sale from ... to 318 eggs records.
ECKMAN & MILLIGAN, Lankershim, Ca...

Fike's Prize One-Acre Farm

(Continued from Page 2)

[illegible] disease or insect pests and [illegible] bunches of first-class eggs. [illegible] proof of the poultry pudding is in [illegible] produced.

[illegible] 700 hens consume 150 pounds [illegible] daily. Recently he has en[illegible] shed room to accommodate [illegible] hens, which will consume 300 [illegible] of green feed each day. One [illegible] neighbors keeps 2500 hens on [illegible] which is considered the limit. [illegible] Weeks poultry house may be [illegible]ed the key to successful acre [illegible] since it makes possible the [illegible] of a large number of laying [illegible] on a small area. The building [illegible] feet wide and extends north and [illegible]. It is divided into 12-foot sec[illegible] each of which has a partition in [illegible] middle, making two rooms 12 feet [illegible]are.

NETTING ADMITS SUNSHINE

[illegible]-third the width of each unit is [illegible]ed up on the outside, to protect [illegible] birds while roosting; the rest being [illegible] open and covered with poultry net[illegible] from the ground to roof. The [illegible]ing sunshine is admitted to the [illegible] room and the evening sunshine to [illegible] west room, while the roof shades [illegible] birds in the middle of the day.

The earth floor is covered eight inches [illegible] with sand, which costs $1.50 per [illegible]. Three yards are required to [illegible] each room. The sand is raked [illegible] once a week to keep clean and [illegible] renewed every year or 18 months.

Green feed is placed in a trough on [illegible] ground along each side of the build[illegible] outside, where it is quickly filled [illegible] from a wheelbarrow, the feeding fowls [illegible]king their heads through a narrow [illegible] just above the trough. Three-[illegible] eaves protect the attendant and [illegible] box from rain and afford shade.

The dropping platform is quickly [illegible]d by raking the offal through a [illegible]-inch hinged door into a wheelbarrow [illegible]side. The nests are underneath the [illegible]ing board and are entered from [illegible] rear having a six-inch hinged door [illegible] to facilitate removal of the [illegible].

The mash is fed from hoppers on [illegible] side of the room, or from a long, [illegible]row trough on the floor.

HOW CHICKS ARE BROODED

The chicks are brooded on the drop[illegible] platform, which is cleaned and [illegible]ized for this purpose and the [illegible] poles removed. The platform [illegible] feet wide and waist high; a [illegible]t location for chicks, which [illegible] considerable hand work. An [illegible]h board is placed in front to [illegible] young birds from falling off [illegible] platform.

[illegible] heat is furnished by a 40-[illegible] electric carbon lamp in a blue [illegible]. This is in the apex of a cone-[illegible] metal hover 30 inches in [illegible]. A strip of building paper 12 [illegible] long and 8 inches wide is [illegible] and bent in a circle around [illegible], the distance from which is [illegible] as the chicks grow larger, [illegible] hover is raised.

[illegible] gradually accustom them[illegible] to the roosting poles and the [illegible], which they reach by means [illegible] board. Two hundred fifty [illegible] brooded in one room, fur[illegible] hens for each unit.

WHAT THE HENS EARN

[illegible] hens, hatched in October, [illegible] above their feed in [illegible] and in October while molt[illegible] $14[illegible] Profits increased ma[illegible] November to January [illegible] some elements [illegible] supplied to lack, [illegible] salts are [illegible] painted [illegible]. A [illegible] An

application of kreso and vaseline killed them.

Fike and his neighbors—there are 125 other acre farmers in the immediate vicinity—have formed a co-operative association for buying poultry supplies and are planning to build a hatchery.

SAVING CONSTRUCTION COSTS

The material for each two-room unit cost $100. Contractors charge $180 for putting them up. The garage house cost only $600, although the contract price is $1400. Corner acres now sell for $1700.

Fike's acre is 410 feet long and 105 feet wide. An 80-foot strip across one end was set aside for a building site, being beautified with grass, flowers, shrubs and fruit trees.

The temporary dwelling—which is to be used later for a garage—is placed eight feet from the rear line, to permit the hauling of scratch sand to the poultry house. The latter is attached to the garage, with a feed and egg room occupying the first unit.

A space 60x000 feet—quarter acre—in front of the poultry house is set aside for growing greens. There are seven rows of kale, four of giant cabbage, seven of stock beets and four of chard. The last two are planted in rows two feet apart, the others three.

Beyond the greens is a patch of alfalfa 60 by 100 feet. The 12-foot parking strip along the road for 300 feet also is planted to this crop. Although never irrigated and cut once a week with a lawn mower, this nutritious legume keeps green and growing.

Just inside the property line there are ten apple trees. These are to be trained on a wire trellis by the espalier system, something like grape vines. Jonathan, Delicious and other standard varieties have made a great growth.

Adjoining the alfalfa patch is a small fruit plantation of equal size. A few rows of Giant Wonder strawberries planted early last spring supplied the table with berries all summer. Black and red raspberry and dewberry vines will bear next year.

In front of the dwelling there is a great number of ornamental and fruit trees, including three plum, three cherry, three orange, lemon, lime, dwarf pear, fig, six peach, nectarine, grapefruit and several others.

MANY VEGETABLES GROWN

A kitchen garden 25 by 50 feet supplies a succession of fresh vegetables every month in the year. Thirty-five asparagus plants are getting ready to "shoot" succulent tips this spring.

A great profusion of flowers and blooming shrubs are the special pride of Mrs. Fike, who also takes an active interest in the animals.

A goat stable was cheaply constructed of two piano boxes, which cost $5, and a $2 stanchion. The backs of the boxes were removed and one used to roof over the space between the boxes, and the other to form one side by connecting two ends. Two Toggenburg does furnish plenty of very rich milk.

MAKING MEAT AND HONEY

Starting with two rabbits a year ago, a large amount of meat has been produced for home use and a considerable quantity sold. Eight extra large hutches of improved pattern were constructed at a cost for material of $5 each. Ready-made hutches cost three times as much.

A colony of bees was divided last spring to prevent swarming. Two hives now contain a large quantity of pure comb honey.

Although lack of space prevents a more detailed description of this wonderful little farm, enough has been told to indicate the production possibilities of one acre and to show how it can be made to yield health, pleasure and a good living.

Planting Plan of Fike's One-Acre "Ranch," Where No Space Is Wasted.

A New Stock Farm

THAT California affords an excellent and growing market for high grade tuberculosis-free dairy cows, is the belief of H. E. Baldinger, for the past four years manager of the big Arden dairy at El Monte.

Having recently acquired a ten-acre ranch near El Monte (Los Angeles County) Baldinger plans to import Holstein and Guernsey cows from other dairy sections, particularly Washington, Oregon and Utah.

In Washington and Oregon, he states, there is less than one per cent of tuberculosis in the dairy herds, and California is suffering as a result of the laxity of this State in fighting the dread "TB."

"Misrepresentation in selling dairy stock is grossly practiced in Southern California, and is one of the worst evils of the dairy business," points out the El Monte milk producer.

Baldinger plans to conduct his enterprise as a high class private institution, free from the unsavory conditions of the average sales yard. He expects to conduct an occasional auction, but will do most of his business directly at private sale. He has named his new ranch the "Barbara B" Stock Farm.

The dairy end of the new enterprise will be secondary. Baldinger expects to offset the high land values prevailing in this close-in district by rapid turnover, and increase in land values.

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Most efficient bowl ever invented. Only real self-balancing bowl. Greater satisfaction due to ease in operation and simplicity. QUICKLY CLEANED. Ratchet coupling eliminates jerks, noise and adds to life of separator. You take no risk. Money back guarantee protects you.

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Write for Free Book

Read the Amazingly Low Express Prepaid Prices:

No.	Capacity	Price	1st Pay't	Monthly Payments
M.O.	150 lbs.	$25.00	$5.00	$5.00 for 4 Months
No. 1	250 lbs.	$35.00	$5.00	$5.00 for 6 Months
No. 2	350 lbs.	$45.00	$5.00	$5.00 for 8 Months
No. 4	400 lbs	$56.00	$5.00	$5.00 for 10 Months

Write for prices on larger sizes up to 1350 lbs. capacity. Also get our low prices on Electric or Power Driven Separators—telegraph at our expense.

Free Service and Parts for one year. Each Separator complete with tools, oil, brushes, etc. Send no money with inquiry. Write

EXPRESS PREPAID Everyone with two or more cows should own an Empire Baltic. 5 per cent discount for cash. Write now.

EMPIRE CREAM SEPARATOR SALES CO., Inc.
Dept. 10 Louisville, Ky.

TIRES WITH 500 NAIL HOLES LEAK NO AIR

A new puncture-proof inner tube has been invented by a Mr. M. C. Milburn of Chicago. In actual test it was punctured 500 times without the loss of air. This wonderful new tube increases mileage from 10,000 to 12,000 miles, eliminates changing tires, and makes riding a real pleasure. It costs no more than the ordinary tube. Mr. D. N. Milburn, 331 West 47th St., Chicago, wants them introduced everywhere and is making a special offer to agents. Write him today.

A penny a day is the average cost per cow for the use of Kow-Kare as a preventive of disease and aid to big milk yield.

Nearly Every Cow Can be made a Big Milker

Cow owners have learned that no effort on the farm pays so handsomely as the drive for *more milk*. Over 90% of the so-called poor milkers are capable of much better results than is obtained from them. An improved health standard is a sure booster of milk profits.

No wonder. Dairy experts say that under average conditions a yield-increase of only 10% will double the net profit of dairying. The fixed cost per cow of feed and care is about the same regardless of yield. After this cost is met, every pint of milk is added profit.

Perfect health has more to do with big milk yields than breeding or feeding. "Forcing" the milk-making organs to greater efforts ends disastrously unless extra demands are met with extra support of the cow's vitality.

Kow-Kare is invaluable to cow owners. It increases the activity of the milk-making function by promoting vigorous health in the genital and digestive organs. It prevents or relieves cow diseases and disorders by helping these organs to function as nature intended. Its benefits are widely recognized for the treatment of Barrenness, Abortion, Retained Afterbirth, Scours, Bunches, Milk Fever, Lost Appetite.

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Wm. E. Starkey, Austin, Ind: "I have found KOW-KARE is the best medicine for milch cows that there is. I found that it always paid to feed it whenever my cows went down on the quantity of milk they were giving. I have cured several cows that were down and could not get up.

James H. McClintick, Solon, Me.: "I had a cow that retained the afterbirth for five days, when I decided to try your Kow-Kare. Three doses removed the afterbirth completely and she is now all right. After that I decided to feed KOW-KARE to two other cows for experiment. It increased the flow of milk of one of them nearly one half; the other gave more milk than formerly and gained in flesh. KOW-KARE is all that is claimed for it.

Joseph Stott, Norwich, Conn.: "I find that by giving a few doses of KOW-KARE it will keep cows in a healthy state, and the result will be more milk—just what we want.

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Lessening the Chick Mortality

Survey Shows Crowding Common Cause of High Death Rate Among Young Chicks

By W. E. NEWLON

Extension Service Poultry Specialist

THE brooding practices of the average California poultryman are as defective as any of his many activities, judging by the fact that 20 per cent of all chicks hatched in the State die before they reach maturity. This is not an overdrawn statement, because the following records obtained in eleven counties during the spring of 1923 show an 18.4 per cent mortality. These figures cover a period of 12 weeks.

Total chicks brooded	170.002
Average mortality	18.4%
Lowest mortality per 1000 chicks	6.6%
Highest mortality per 3000 chicks	71.4%
Average chicks per man	2,076
Average chicks per brooder unit	1.044
Pullets at 3 months	40.8%

The above figures will enable the poultryman to check his results. Are you as good as the average, better, or worse? We are sure that the 18.4% mortality is low enough, because many record books were not returned to us when we called for them and oftentimes observation indicated that the poultryman was not proud of his results.

The records show two very obvious reasons why one-fifth of all chicks hatched fail to reach maturity. First, there is a direct connection between floor space and mortality. In other words, the size of the house in which the chicks are brooded may cause success or failure during the brooding period. Of course, the brooder house should meet the requirements of the birds for fresh air, sunlight and dryness.

The poultry department of the University of California advocates at least one-half of one square foot of floor space for each chick, or 50 square feet per hundred. Records obtained last spring show that the more chicks are crowded the greater the mortality.

EFFECT OF CROWDING ON CHICK MORTALITY

Floor Space Per 100 Chicks	Total chicks	Total died	Pct. Mortality
35 sq. ft. or less	73.077	19,257	26 3
35 to 50 sq. ft.	25,371	4.122	16.2
50 or more sq. ft.	25,044	3 484	13.T

Second: The number of chicks allotted to each brooder stove has a large influence on mortality during the brooding period. We realize that the size of the unit has a decided bearing on the labor expense of brooding, but most men crowd too many chicks around the stoves.

Number chicks per unit	Avg. No. chicks	Pct. Mortality.
100 to 400	231	15.4
400 to 800	717	14.2
800 to 1200	1.012	18 3
1200 to 1400	1.309	20.9

Note in accompanying figures that more than one-fifth of all chicks died when lots of 1200 to 1400 were brooded. Furthermore, those chicks which did pull through were subjected to the same adverse environmental conditions that killed the 20.9 per cent. Surely one cannot expect birds of this sort to be high producers and good breeders after maturity is reached.

A table of figures showing the distribution of mortality over the first few weeks of the brooding period should be of interest to all poultrymen. These records are based on 35 299 chicks with a mortality of 4642 in ten weeks.

	Pct.
First week	36.7
Second week	20 7
Third week	7.2
Fourth week	5.9
Fifth week	2.8
Sixth week	5.8
Seventh week	8.4
Eighth week	5.9
Ninth week	3 9
Tenth week	2.7
Total	100.0

It is of great interest to note that 57.4%, or more than half of all the chicks that died in ten weeks, were lost during the first two weeks. Upon this fact the statement is made that "the first two weeks of the chick's life are of prime importance." Great care must be taken at this time if the little fellows are to get the proper start in life.

Attention also is called to a mortality of 8.4% during the seventh week. There are several reasons for this, not the least of which is that the cockerels are not separated from the pullets as soon as they may be identified. Furthermore coccidiosis and intestinal worms may begin to play havoc at about this time. We cannot too strongly emphasize the value of attention to details throughout the brooding period.

Limiting Production

(Continued from Page 3)

figures of speech, although today it is the headlight on the tractor, with the driver working throgh the long, cold nights.

HIGH VERSUS LOW PRICES

Many of the arguments against higher prices of agricultural products are based upon the statement that if prices are too high, people will not buy. This may be true in some remote instances, yet I can furnish ample proof that high prices do not curtail consumption.

Take the early fruit industry, for instance. Early apricots sold the past year in the New York market for as high as $4 per twenty-pound box as fast as they could be delivered. Yet a month later, better apricots could be bought in the same market for $1. Large Tragedy plums sold for around $3 a crate, and on the same day small plums of the same variety brought only 50 cents. No difference in the taste of the fruit, yet there always are enough people willing to pay the higher price for a better article. Fruit sales are governed by appearances, not prices.

Why do avocados bring $6 a dozen? Does the high price curtail the sale? When potatoes are scarce and high in price, do they not sell more readily than when cheap?

Choice cuts of meat, white eggs, large hens and rare furs all bring premiums. The consumer will pay as much as he is compelled to pay for an article.

LET CONSUMER WORRY

Instead of farmers organizing to sell, I believe they should organize to buy and to control production. Let the consumer organize to lower freight rates on the food they buy; let them combat the extravagant profits of the middlemen and retailers and strive to cut down selling and delivery costs. It is up to him to worry as to where his food is coming from and at what price.

Government price fixing, co-operative price fixing, long-time credits and import duties are but temporary farm aids, merely postponing the inevitable time when a serious operation must be performed or death will ensue.

The law of supply and demand is inexorable. We scarcely can expect to control the demand for our products, but we certainly can control the supply.

What, then, are the definite steps farmers should take in order to correct present-day evils? Organize, certainly because in acting separately we never can accomplish anything definite. First let us definitely regulate production, growing only what our country will consume. Let our unfilled orders be the index of each year's activity.

Our Government must aid us in collecting and distributing reliable and intelligent information on crop demands. Farmers should first produce enough for their own personal needs, diversify crops to supply the family larder and buy fewer manufactured products. They should co-operate in manufacturing agricultural products for their own needs, such as making wool into clothing.

SELL ONLY THE BEST

Cull, and then cull again. Refuse to send to market inferior products. Plow under half the fruit crop, cull hens when they are baby chicks, instead of flooding the market with mature birds; keep fewer and better cows—and so on down the agricultural line.

Put farming on a profitable basis and what would be the result? Boys and girls content to stay on the farm; no movement of farmers to industrial centers; no trouble to borrow money for farming operations; stable business conditions.

A Japanese fruit farmer said to me recently, when I asked him the outlook for the coming year: "Well, I do not know. Short crop, make money; big crop, no good." That is the uncertain basis upon which the American farmer operates today.

Must we wait for nature to maintain the balance of production, by frosts, drouth, insect pests, floods and disease, or shall we ourselves control production, as other manufacturers do?

Selling Rabbit Hides

Where can I sell rabbit hides? MRS. E. E MORELAND, Los Angeles County.

I NEVER could find any market for green rabbit skins. The price offered by Eastern dealers does not pay for shipping them.

I use all our rabbit hides in making robes and garments. I buy skins by the hundreds from Los Angeles dealers in live rabbits, paying $1 per dozen, and get them tanned afterwards.

I use only skins of animals of 5 to 8 months old. Skins from older animals are too hard after tanning, unless manipulated by proper machinery.

American Blues are nice for women's wear and New Zealands are suitable for children's clothes. Any variety makes fine auto robes.—Mrs. Ellen S. Green.

Grains Are Tested

GRAIN variety tests in Ala[meda] County, particularly in the L[iver]more Valley, have indicated t[he su]periority for local planting of T[en]nessee Winter barley. But t[hese] tests, as well as others in Calif[ornia], have shown that results depe[nd al]most entirely on local conditions.

In Alameda County the Tenne[ssee] has proved to be a consistent he[avy] yielder. One investigator count[ed] 32 stems on one plant. A grower w[ho] produced 25 acres of the Tenne[ssee] Winter sold his entire crop to [his] neighbors for seed.

Another barley, known as "40[...]" which is merely an improved s[train] of the common type, gave higher yi[elds] some years and lower yields ot[her] years.

"Mariout," which has found [...] favor elsewhere, did not do w[ell in] Alameda County except on gr[...] soils.

"Chevalier" barley has become [po]pular because of the demand for it [by] foreign brewers, and the fact th[at it] makes good hay.

The fact that Mariout w[as sur]posed in almost every respect [by] Tennessee Winter in this county [em]phasizes the axiom that no one [va]riety may be expected to beh[ave in] the same manner under vary[ing soil] and climatic conditions.

A large acreage in this county, [par]ticularly the Altamont Hills, is dev[oted] to either grain or grain-hay produc[tion]. A system of rotation is pr[ac]ticed on some of the larger ranch[es]. It is not exactly rotation either [in] the usual sense of alternating cr[ops], nor is it summer-fallowing as [prac]ticed in certain "dry farming" secti[ons].

One-half the land is planted to g[rain] and the other half used for c[attle] pasture one year while the follow[ing] year the pasture land is plowed [and] the other half allowed to make f[...]. A. J. M.

KEEPING DAILY EGG RECOR[DS]

Progressive poultrymen realize [the] importance of keeping daily egg r[ec]ords. A blank book for this purp[ose], designed for 1924, is being sent free [to] all egg producers who apply to t[he] Globe Milling Company, Petalum[a].

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Sheep Displace Tractors in Walnut Orchards

Interesting Tulare Experiment

WHEN Bermuda and other wild grasses threatened to "take" their orchards, these Tulare County walnut growers decided to abandon cultivation, sow alfalfa as an inter-crop, and go into the wool and lamb business as a sideline. Incidentally a saving of more than $5000 a year in fertilizing expense resulted.

By ALBERT J. MASON

SOME authorities assert fertilization of walnut trees does not pay; nevertheless L. B. McMillan, manager of the 400-acre walnut ranch of the Visalia Orchard Company, Inc., expended from $5000 to $7000 annually for sheep manure until two years ago.

The owners, in justification of this expense, cite a typical yield of thirty-eight tons of Franquettes on thirty-five acres, netting $550 a ton. This was from trees planted in 1910.

Like most other walnut growers, this company had practiced clean cultivation, but finally the Bermuda grass problem became so acute that cultivation expense ran as high as $9000 one year. As many as ten cultivations were required one season.

It was this combination of circumstances, together with observations made in Orange County by one of the officials and principal owners, A. G. Freeman, San Francisco capitalist, that led to the decision to convert the great orchards into sheep pasture. "There are walnut groves near Santa Ana," said Mr. Freeman, "which have not been cultivated for twenty years.

"If we can cut off these two big items of expense and at the same time derive additional income from the sale of wool and lambs, why not combine orcharding and livestock raising?" demanded Freeman of his manager.

And McMillan went his chief one better by suggesting that the ewes be bred for very early fall lambing, in order to produce milk lambs for the highest winter and spring market.

Soon the novel experiment was under way. Now there are more than 1500 head of sheep on the place, including about 600 yearling ewes, and the fall lamb crop numbers 1000 head. Some of these lambs were dropped in November and December, but McMillan states his experiments in September and October lambing have resulted in the decision to breed all the ewes for early lambing hereafter.

"In this way, we can take the cream of the milk lamb market prices," he explains, "and at the same time avoid the bad weather which sometimes interferes in later months. But even for later lambing, we do not require expensive equipment. We have been using rough shelters which do very well in rainy weather. Later, however, we plan to construct a shed with center alley-way to facilitate feeding.

McMillan believes he can compete successfully with the Imperial Valley, which last year sent "hot house" lambs weighing fifty-eight pounds, to the San Francisco market in the middle of January. These sold for $14.50 per hundred weight.

Figuring that the ranch readily can maintain sufficient ewes to produce 700 market lambs a year, it is easy to arrive at a conservative estimate of [illegible] gross annual lamb revenue.

Then there are always a few cull ewes to be replaced by selected ewe lambs and these may be counted on for several hundred dollars more.

Five thousand pounds or more of wool at present prices helps to swell the total—and all at practically no expense for feed. The ewes are shorn twice and fall. One man does the [illegible] of the year, and with the exception of lambing expense, the [illegible] Mexicans do most of the work with the sheep.

[illegible] considered — including [illegible] in orchard [illegible], and revenue from various lines in the sheep department—the investigator is brought face to face with the fact that the woolies will mean not less than $20,000 a year to this ranch. And that includes a very liberal allowance for natural losses, interest on investment and operating expenses!

McMillan is using Rambouillet rams at present, his idea being first to build up a flock of the right type of ewes and later to cross with black face rams for the market end.

The sheep spend all but a few weeks in the early spring right in the orchards. To provide "strong" feed and higher range at this season, however, a tract of 900 acres of foothill land is leased at a nominal rate.

No concentrates are fed except at lambing time, and the market stuff is turned off of pasture, still carrying the "baby" fat, so much desired by the butcher and the epicure.

The entire orchard tract was planted to alfalfa two years ago. Gradually, no doubt, this will be overrun by the wild grasses, but the combination makes good pasture anyway. The trees are fifty feet apart, the oldest being fifteen years of age.

Irrigation is carried on as before the sheep were acquired; herding makes it possible to keep the sheep out of the way while this and other orchard operations are in progress. A plentiful supply of water, of course, is essential to the production of any inter-crop. By flooding the alfalfa in checks, it is possible to irrigate the trees at the same time.

Franquettes and Mayettes have proved most successful. Twenty acres of nine-year-old Mayettes produced 1940 pounds per acre last season, according to the manager. One block of Placentias, which has suffered almost every year by frost injury, is being top-worked to Mayettes. Blight also has affected the Placentia trees, the yield having dropped from seventy tons to less than twelve tons.

An experimental planting was made last year of Eurekas and Paynes, the latter variety desirable because of its early bearing qualities. These trees are set thirty by sixty feet, and after observations have been made as to their relative merits, all those of one variety will be removed, leaving the final choice sixty by sixty feet.

NO HULLING IS DONE

No hulling is done on the ranch. "If the hull sticks, the nut goes to the cracker," commented Manager McMillan. "If sufficient hull remains to require mechanical removal, the nut won't bleach anyway." A big percentage of the nuts are of the highest grade.

The crop of the Visalia Orchard Company is handled through the California Walnut Growers' Association, but the company owns its own packing house and is not affiliated with other growers in the district.

Large scale production on a concentrated acreage of this size involves imposing statistics of many kinds. For example, one year's activities in wire bracing consumed four tons of No. 10 wire and nearly 30,000 wooden blocks, which are preferred to staples in this locality.

Very little spraying is necessary. One year fifty sacks of sulphur sufficed to clean up a bad dose of red spider and none has been used since. Pruning is moderate. The aim is simply to keep the centers of the trees open.

McMillan does not believe in "babying" walnut trees. Consequently little time is wasted upon ailing individuals. "When a tree gets in such bad shape that it requires surgical treatment, it is better to remove it," insists this grower. "Root or crown gall injury sometimes troubles us just as it does other producers, but with us, this usually calls for removal of the affected tree. My experience has shown that the four adjoining trees develop enough more rapidly and produce enough larger crops soon to offset the loss of the one removed." Some replanting has been done, however.

NO INJURY TO TREES

On the whole the orchards are extremely healthy and vigorous. The sheep are said not to injure the groves in any way, except in the case of young trees, which must be protected for a year or two. On the contrary, the owners believe the trees are being benefited constantly by the presence of the animals. In addition to the enrichment of the soil through pasturing, there is made available large quantities of pulverized manure about the corrals and lambing sheds, which is scraped up and spread in the orchards.

This Tulare County ranch is a most interesting example of non-resident ownership and development. The president of the company, A. G. Hotchkiss of San Francisco, has taken practically no active interest in its management. McMillan has had charge for more than five years.

ORCHARD and FARM would not give the impression, however, that this concern had not met with serious difficulties. To bring so large a property even to its present state of production has meant the investment of big sums of money. But the enterprise was launched with full understanding of the time required for walnut trees to produce a commercial crop.

Yet even they did not place a sufficiently high estimate upon the ultimate cost of their undertaking. The planting of trees has been carried on from 1909 to the present time, so that there will be a rapid increase in total production year by year. A net income of $100,000 a year seems to be a conservative estimate for the horticultural end of the enterprise. And as for the sheep—well, as Manager McMillan says, "That begins to look more and more interesting."

Everybody loves a baby, and here are two. The little daughter of Manager McMillan is holding a new addition to the flock.

Grazing beneath the spreading walnut trees, the flock, numbering more than 1500 head, is in the pink of condition.

McMillan exhibits with pride this October lamb, weighing 50 pounds at nine weeks. Below—15-year old Mayettes..

Suburban Farming In Arcadia

Partial view of Ross Field and the nearby Sierra Madre Mountains. Here are 48 large barracks.

Digging out Bermuda grass on the new acre farm of O. H. Barnhill, of Orchard and Farm.

"BACK in 1911 I was a worn-out traveling man," relates R. H. Schwarzkopf, whom John Steven McGroarty, eminent author of the Mission Play, has featured as the highest type of California community builder. "Twenty-five years of road work had reduced my physical vitality to a low ebb.

"My physician assured me that I soon would suffer a complete breakdown if I did not get back to the land and live an outdoor life. Fortunately, I took his advice and purchased five acres of land in the beautiful San Gabriel Valley, near Arcadia (Los Angeles County).

"What I did not know about farming was plenty—and then some. Having plenty of courage, however, I embarked in the chicken business, never doubting I would succeed. Within two years I had built up a flock of 2000 fine, productive hens and had a contract with a Los Angeles hospital for my entire egg crop, at the highest market price."

MAKING SMALL HEN RANCHES

Seeing the opportunities for poultry success under ideal conditions, Schwarzkopf went into the real estate business, subdividing large tracts into small chicken farms. Settlers were given valuable advice and assistance in getting started in egg production, with the result that West Arcadia has become the home of some of the finest and best paying little chicken ranches in the country.

The Armstrong Johnson and Brookover poultry plants, among others in this district, will be featured in early issues of ORCHARD and FARM. The largest Arcadia egg farm, perhaps, is the one owned and managed by Sherwood Holbert, formerly of Canada. The plant covers three and one-half acres and supports 6000 birds.

Albert Dodge, a former auto dealer, has 3000 hens and three acres of land; Loury and Weber, ex-tailors, one and a quarter acres, 700 fowls; Briggs & Agnew, erstwhile government clerks, five-acre peach orchard and an up-to-date poultry plant; Florence Roberts, two and a half acres, 800 birds; Louise Vinsonhaler, school teacher, one and one-half acres, 700 hens.

Caring for and milking his pet cow is regarded by R. H. Schwarzkopf, prominent Arcadia realtor and suburban farmer, as one of his most enjoyable duties. He is raising a fine family of country boys and girls.

The foregoing are mentioned merely as examples of Arcadian suburban farmers. They enjoy nearness to a large city, Los Angeles being only 14 miles distant, while Huntington Drive and the Pacific Electric railroad furnish quick transportation.

With the finest sandy garden soil, pure water from the nearby mountains at 35 cents per cubic foot, an elevation of 500 feet and a climate which approaches the ideal, these Little Landers think they can well afford to farm land valued at $2000 to $3000 per acre, especially when it is considered that they benefit by constantly increasing real estate values.

The rising tide of population, in fact, is pushing these hen people to the wall since their land is becoming more valuable for residence purposes than egg production.

HISTORIC RANCHO NEARBY

The famous Santa Anita Rancho lies just north of West Arcadia, while Ross Field corners with it on the northeast. Here is located the government balloon school, which is equipped with two immense hangars, also 2000 carrier pigeons. The latter are considered members of the U. S. Army Signal Corps. Some of the birds served with distinction during the World War.

One of the largest and best poultry, rabbit and pigeon shows ever held in the State was put on at Ross Field last fall. This exhibition served to call attention to the splendid facilities which this fine government property affords for holding similar shows, such as a county or district fair. The property covers nearly 100 acres and contains 48 large barrack buildings. The only rental charge is a percentage of the net receipts.

"If people only knew the keen delight of watching things grow and of living on a broad acre, instead of a stuffy city lot, every well located suburban tract soon would be covered with happy homes," declares Schwarzkopf, who—in spite of his present occupation—enjoys farm work better than anything else. "Here in West Arcadia we have all the city comforts—gas, electricity, water, paved streets and daily deliveries of mail and other commodities—plus the luxury of supplying our tables with the finest of Nature's products."

Well loaded Hachiya persimmon trees on the suburban farm of C. D. Crowell, formerly of Maine.

The Schwarzkopf suburban home on Huntington Drive. Fruits, vegetables, milk, eggs are produced.

ORCHARD *and* FARM

MARCH 2, 1924

Building Poultry Industry From the Bottom Up

That's What Hayward Is Doing

IT IS variously estimated that the Hayward district of Alameda County has from 750,000 to 1,000,000 hens. At any rate, it has become one of the principal poultry centers of California. But instead of the hatcheries dictating to the breeders, as in some other districts, the breeders of Hayward have the upper hand, and they are co-operating in a constructive policy for the common good.

By ALBERT J. MASON

"BUSINESS is good," say the poultrymen of Hayward; however, they're not overlooking anything that will make it better!

Perhaps the greatest single factor in the recent rapid development of this growing poultry center is the big electric hatchery. This modern chick plant is sponsored by the Farm Bureau Poultry Breeders' Association, and supplied with eggs by no less than 30 certified breeders.

An old orchard is the site of the Boehm and Noel poultry ranch, where trapnest records have been kept for ten years. The owners are great believers in free range for hens.

View of main laying house at F. C. Steiner place, with town of Hayward in background. Steiner is breeding a White Leghorn strain combining production and type.

Because of his style and the fact that he comes from a long line of heavy producers, Boehm and Noel point with pride to this fine individual from their flocks.

W. W. Beidleman, in an informal pose before the hatchery office. The enterprise is sponsored by the Farm Bureau Poultry Breeders' Ass'n.

Flocks of members are inspected regularly and the hatchery is under bond to turn out a warranted product. "The Association employs a disinterested inspector," explained W. W. Beidleman, hatchery manager; and he shows no favoritism. The breeder pays by the hour for the time spent with each flock.

"We advertised that our hens would be mated with males with at least 200-egg records, but this year the average is nearer 250 eggs. Our breeders are striving to establish an all-around reputation for uniformity, good type, long life, consistent production and vigor, rather than simply high egg records. They prefer a 200-egg hen which lays early and long, to a heavier producing fowl which 'burns out' quickly." The hatchery has been paying 17 cents above market price for eggs.

Following are the requirements for admission to the accredited list:

(1)—Females must be not less than 12 months old.

(2)—Their bodies must show capacity and vitality to stand up under heavy production.

(3)—The breeding flocks must have been heavily culled and approved by inspector.

(4)—All males must be not less than 10 months old, when placed in the breeding flocks.

(5)—Males must be approved by the inspector as to vigor, and have in addition authentic trapnest record on the side of both parents of not less than 200 eggs.

(6)—Eggs must be uniform and of proper size, shape, color, and shell texture, and must weigh not less than 22 ounces nor more than 26 ounces.

This is, indeed, one of the finest hatcheries in the West. It is operated entirely by electricity, is equipped with the King system of ventilation and has a capacity of 108,000 eggs. The building is 200 feet long; there are 200 incubation units. More than $1500 per year is paid for electric current. The eggs are turned twice daily.

The members of the Farm Bureau Association have agreed to deliver eggs to no other hatchery and the hatchery, in turn, has agreed to sell only chicks certified by the association.

ALL HANDS HELP

Farm Advisers Robinson and Hammond have contributed much to the success of the poultry project and have given unstintingly of their advice and energy towards the upbuilding of the industry.

Another enthusiastic booster is W. S. Freeman, whose pullet plant was described in a previous issue of ORCHARD and FARM. Freeman, by the way, now sells more than 40,000 pullets a year and states his fall sales this past season aggregated twice the business done during the corresponding period of 1922.

This achievement is paralleled by results secured by hatchery and breeders. "The fall chick business," said Beidleman, "is growing every year. And this is as it should be. Our California climate makes it possible to lengthen our season and keep the ball rolling the year around.

"The fall stuff lays when eggs are highest. Furthermore, the hatchery overhead expense is reduced and the breeders' income is spread over a longer season. Another thing—fall broilers strike a much better market than those raised in the regular season."

This progressive spirit is characteristic of the Hayward poultry colony. Although there are many old-time poultrymen, new blood and new ideas are being introduced constantly by small operators, many of whom start with poultry as a sideline while holding positions in the city and developing suburban homes.

UTILITY AND TYPE

One of the most interesting and successful commercial plants is that owned by F. C. Steiner, president of the Breeders' Association. He is a stanch advocate of the dual-type Leghorn, that is, one combining show type with heavy production.

Steiner has been trapnesting his standard-bred birds four years and has culled so religiously that his present flocks consist of but 1500 fowls, including pullets. His enviable reputation as a breeder, however, and the demand for his stock indicate the soundness of his theories.

One of his hens, now 18 months old and being trapped during her second year, laid 273 eggs during her pullet year and from September 18 to December 11, 1923, had laid 65 eggs. She is a beautiful example of the excellent type, capable of sustained high production, which Steiner is breeding.

This breeder uses metal trapnests and inspects the nests every 30 minutes. Any fowls which do not lay over 250 eggs during their first year are put into the general flock and not trapped the second season. He does his own trapnesting with the aid of Mrs. Steiner.

"I am a great believer in green feed," Steiner points out, "and it is surprising how much we can produce on a small area. I have but two acres here, yet I can keep 2500 hens with my present equipment and raise plenty of kale and barley for them."

Steiner experimented with an open-front house, but abandoned this type on account of winter storms. Fresh air is admitted by ventilators behind the roosts which open under the eaves. The buildings are situated upon a hill, providing good drainage.

STEINER'S FEEDING FORMULA

This breeder mixes his own mash according to the following formula: 300 pounds corn meal, 200 pounds middlings, 100 pounds ground barley, 12[illegible] pounds beef scrap, 50 pounds soy bean meal, 50 *(Continued on Page 9)*

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
MARCH 2, 1924

Common Sense Pruning Most Satisfactory System

By L. C. BARNARD

Manager, Greenfield Orchards, Concord, Contra Costa Co., California

WHY affix such a title as short or long to any system of pruning? These terms unfortunately are misleading in themselves, because what one grower calls short pruning may mean medium heading to another, and long pruning to Mr. Jones may mean no heading whatever to Mr. Smith, whereas to Mr Jones it means heading or cutting back one-third of the new growth.

This situation is not an exaggeration, but is a cold fact with many of the growers throughout the State. Yet, as persistently pointed out by the various members of the Pomology Division, the Farm Advisers, and leading horticulturists, such as George P. Weldon, long pruning does not necessarily mean no heading back of the new growth.

During the past few months the writer has spent a portion of every week-end driving through the many orchards in the Santa Clara Valley, observing the methods of pruning which are being followed.

In those orchards where long pruning is being practiced, most of the growers are making the mistake of leaving two or three leaders on the strong side of the tree about four feet above the weaker side instead of heading these strong growing leaders back to correspond with the weaker side. In other words, they have the impression that to do any heading in long pruning is a crime practiced only by wood butchers and never by the long pruner regardless of the fact that common sense should tell them to encourage the weaker side of a tree and hold back the stronger side.

MAIN LEADERS SACRIFICED

In driving to Ventura via the Coast route and return, during the recent Christmas holidays, the writer observed many orchards in the vicinity of Atascadero and Paso Robles in which long pruning in most cases was being incorrectly applied.

In some cases the main leaders had been cut back into two and three-year-old wood, from two inches in diameter to small spindly laterals, the size of a lead pencil.

Also in some of the orchards one-half of the tree was left four to five feet higher than the other side, making and encouraging a lopsided tree. In both of the above cases, the main portion of the trees were left full of fine brush, or practically untouched.

Having just finished the pruning of 75 acres of Bartlett pears and 11 acres of apricots with a crew of university students, the writer has been impressed by the fact that after all there should be only one system which for lack of a better name we might call, "Common Sense Pruning."

This orchard is eight years of age and during its short period of existence already has been long and short-pruned by inexperienced workmen. The writer believes that had either the long pruner or the short pruner applied to this orchard strictly the system which he represented, it would have been a sorry looking sight! In other words the orchard was treated according to common sense methods, keeping in mind, of course, the fundamentals of pruning.

Why Prune Either Long or Short?

HAVING studied pruning intimately since 1914, first as an orchard worker, then as a student at the California College of Agriculture, next as a faculty member, and finally as manager of 115 acres of fruit in Contra Costa County, the author of the accompanying article is well qualified to discuss this vitally important subject. His views no doubt will coincide with those of many practical fruit growers.

—The Editor.

Since becoming an honest-to-goodness producer it has been the pleasure of the writer during the past six months to come into closer personal touch with many of the fruit growers of Contra Costa County and to talk with them on orcharding problems in common.

Quite naturally during the last few months the problem concerning most growers has been pruning, and the big question has been, "Shall I prune short or long, or shall I use a fifty-fifty method?"

This fifty-fifty system is still a third nuisance which some of the professional pruners are passing off on some non-resident growers and the small acreage owners whose main business is not orcharding. For example, the writer was called in to pass judgment and remedy, if possible, the fifty-fifty method which a professional pruner had advocated to a traveling salesman who was also orcharding as a sideline.

All the laterals of these four-year-old pears had been stubbed back according to short pruning and the main leaders, five to six in number, were straining skyward about six feet above the stubbed laterals.

Rather far fetched, but true! And this orchardist was paying six dollars a day for this type of pruning. According to the evidence, fifty-fifty short and long pruning to this "expert" meant butchering half of the tree and not touching the other half.

However, to get back to the title of this article, out of all this controversy on short and long pruning there is gradually evolving a more sane or rational type.

It is noticeable that even the Japanese pruners, who are noted for their ability to make ideal hat racks out of any variety of fruit tree, gradually are cutting less severely each season. In going through orchard districts noted for short pruning one cannot help noticing the cuts are getting longer each year.

Also, in passing through long-pruned orchards it is evident that more heading or cutting back of the new growth is being practiced than formerly was advocated.

In other words, the growers are beginning to do "Common Sense Pruning," which means to prune the tree which stands before you according to its physical makeup, keeping in mind the fruiting habits and the local climatic conditions, such as prevailing winds and danger from sunburn.

SENSIBLE SYSTEM DESCRIBED

To get down to brass tacks on what is meant by "common sense pruning," the grower should not make a decision before going into the orchard that he will prune according to the short or long system and then stand pat regardless of the shape or physical condition of the tree and other common sense indicators.

The pruner, whether professional, professorial or novice, should prune fruit trees with an open, unbiased mind concerning any one system, taking into consideration the fruiting habits, the variety of the tree being pruned and the age, also the local weather conditions.

For example, in Contra Costa County, particularly in and around the Clayton Valley, during the late spring and summer months the prevailing wind is from the southwest, and in addition to being rather brisk, is of rather frequent occurrence.

The growers in this locality have found that Bartlett pears in this section have to be headed slightly to strong laterals and sometimes from one-third to one-half the new growth; otherwise the tops break over and the bulk of the crop is automatically changed from No. 1 grade to No 2, because of the whipping about of the long willowy branches and consequent scarring of fruit.

UNIVERSITY MORE "LENIENT"

Not only is common sense pruning now being practiced by many growers, but some of the university advocates of long pruning also are becoming a little more lenient.

About six weeks ago the writer had the pleasure of accompanying the Farm Adviser of Contra Costa County on a trip to a conference of the farm advisers of the Central and Coastal counties, held at Hollister. This conference was for the purpose of discussing and demonstrating the latest developments of long pruning.

A member of the pomology division of the *(Continued on Page 10)*

Farm Bureaus, Take Heart From Imperial's Achievements

Soundness of Organization Proved by Survival Under Trying Conditions—Valley "Going Strong"

By THE EDITOR

C. C. JENKINS
Secretary Imperial Co. Farm Bureau

HAVE you ever witnessed a real "knock down and drag out" fight (as they say in the South)? Picture one of the combatants as a dogged, heavy-hitting fellow who knows he is in the right and who won't give up. He gets first one black eye, then, another, and finally a bloody nose, but triumphs at last over his various adversaries because his cause is just and he has the will and endurance to defend it.

The Farm Bureau has been having just such a battle in the Imperial Valley Two or three unfortunate co-operating marketing ventures supplied the black eyes, and several matters of policy the bone of contention.

The fight is far from being won now. But if ever there was proof of the soundness of the Farm Bureau idea, it will be found in Imperial County. If it hadn't been sound, it would have been [illegible] and buried there!

Wonderful progress has been made during the past year and many recalcitrants won over to the cause. But despite a recent increase in membership from 33[illegible] to 1200, probably not more than 2[illegible] per cent of the farmers belong to the organization. The membership campaign however, is still in progress, and according to C. C. Jenkins, secretary-manager, will be continued indefinitely until the 100 per cent goal is approached.

CONDITIONS UNUSUALLY HARD

Other counties have their Farm Bureau troubles, to be sure, but we doubt [illegible] conditions paralleling those of Imperial exist anywhere else in California. It is estimated more than 50 per cent of the cultivated area is tilled by tenants. Non-resident owners are [illegible] prospects for Farm Bureau membership while few of the renters [illegible] interested. Furthermore the [illegible] is comparatively new and the [illegible] constantly [illegible], however, in meeting this situation to some extent by carrying the campaign into the towns, with the result that several hundred business men, commercial houses and chamber of commerce members are giving their financial and moral support to the farmers' cause.

And this is very logical: Probably no area of similar size in California is so utterly dependent upon agriculture.

Without the irrigation system and the farms there would be no business in Imperial Valley. This point is being emphasized in enlisting the aid of the business men. During the period of severe depression, now happily past; the merchants and bankers had this lesson brought home to them in a manner they should never forget.

The Associated Chambers of Commerce, representing the various towns, challenged the farmers during the recent "drive" to get more members than they! It is in this newer development — the support of the townspeople—that farm bureau officials take most pride.

The support of the press, too, is more general than formerly. During the membership drive seven valley papers all issued special editions and they now give large space to every Farm Bureau prospect. In return, they are rewarded both with printing contracts and with paid advertisements.

MEMBERSHIP CONTEST SUCCEEDS

The great increase in membership cited above was obtained in two weeks' time at a cost to the organization of only $182, mostly spent in advertising. No paid solicitors were used. Instead, the various community centers carried on the work, great rivalry resulting from the competition among the teams of the various centers. Two women workers, Mrs R. B. Harmon and Mrs. Samuel Robinson of Brawley, carried off high honors. The team captained by the former brought in 115 members and the latter 96 As a result of their efforts, Eastside-Sunset Farm Center added more than $100 cash to its treasury. Rainy weather interrupted the drive in other districts.

Few county farm bureau centers enjoy better attendance and more interesting programs than those of Imperial Valley.

The secretary and directors, however, manage broader projects affecting the entire valley. One outstanding accomplishment has saved the growers hundreds of dollars during the recent lettuce shipping season. This was the lettuce rate hearing, sponsored by the organized farmers in opposition to the railroads, which attempted to charge the full icing fee for refrigerator shipments.

"FREEZEOUT" THWARTED

It is the practice of valley shippers to place cracked ice on top of the crates and to not fill the bunkers. The carriers maintained that since refrigerator cars were being used, the full rate for icing, or $90, should be charged. An interesting feature of this controversy was the support of L. C. Lee, a prominent shipper, who stood by the growers, and, in fact, helped put through the entire project.

After an attempt to adjust the matter in Los Angeles had failed, Secretary Jenkins went to Chicago, where with the assistance of J. J. Gould, representative of Arizona, and the rate expert and attorneys of the American Farm Bureau Federation, he succeeded in having the hearing postponed and transferred to Los Angeles, where witnesses could be taken by the shippers.

The hearing was held in November and the feeling is quite general that the shippers won their case, although the decision of the commission will not be made until March 10. This delay, however, tided the growers over the 1923-24 season, at a time when market conditions were unsatisfactory anyway, and therefore was of real cash value to the valley.

Another important campaign, backed by the organization, was the pure seed drive of the cotton growers' department.

The most recent project of the Imperial County Farm Bureau as a whole has been its efforts toward putting over the Boulder Dam legislation which has been pending in Washington. President Webster and other representatives of the farm organization have been active at Washington. They, as well as residents of the valley, expressed great appreciation of the illustrated article, published in the American Weekly section of the Sunday Examiner recently, and the feeling in general that final victory for the Southwest is in sight.

UNIVERSAL SUPPORT NEEDED

We might cite many other interesting phases of the work of California's "farthest south" farm bureau, but these will suffice to point the moral which should be taken to heart by every man and woman in rural California.

There is now one big time-tested, nation-wide farm organization, capable of doing the farmer real service—and ONLY ONE! There is one that has survived the greatest strain ever put on any organization (the recent agricultural "slump")—and ONLY ONE! There is one which has direct contact with sources of education and extension work and which, therefore, is capable of rendering complete service—and there is ONLY ONE organization of which this is true.

Therefore, instead of criticising the management or activities of our local organizations, or fostering competitive associations, let us GET ON THE INSIDE and WORK! The same thing applies to the farm bureau which applies to politics If you don't like the way it's run, your vote is as good as the next fellow's: jump in and fight for what you think is right and best, and then after you have done your part, bow to the will of the majority.

Nobody loves a critic who has no constructive suggestions; nobody helps the fellow who won't help himself, nobody loves the whiner who is not a graceful loser!

The farm bureau should appeal to the best in all men and women, and, granting that it has made mistakes and has many faults, still offers the best medium for bettering rural conditions.

Again we repeat Fresno's estimable motto: 'You Can't Saw Wood with a Hammer!'—J. C. K.

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Friendly-Philosophy
By THE EDITOR

J. C. KNOLLIN

LAST CALL—PLANT TREES. Tree planting time is passing for this year in most sections of California. Nurserymen tell us the demand for fruit trees has continued apace, despite a rather discouraging marketing season during 1923.

There is one type of tree, however, that does not depend for its value upon fruit prices—the one intended for shade or ornamental purposes. It is perhaps safe to say that we cannot have too many of these in California.

If every home or land owner would set out only two or three trees or shrubs this season, think how much they would add to the beauty and attractiveness of our State—not to mention their actual cashh worth in improving property values. See your nurseryman at once.

WINDBREAKS AN ECONOMIC NECESSITY. There is yet another angle to this tree planting question, one which is engaging more and more attention on the part of agricultural authorities and farmers generally—the value of and necessity for windbreaks.

Planting of windbreaks adjacent to orchards and farm lands has been inhibited by the knowledge that the roots reach out for long distances and "steal" moisture and plant food. Many eucalypts in Southern California, especially, have been removed for this reason.

It is possible, however, to prevent this nuisance by means of a sort of "subsoiler" or heavy blade, which is drawn along the rows beneath the surface of the ground and severs the roots. And then, other trees may be used for windbreak purposes, which are less open to criticism in this respect. ORCHARD and FARM soon will publish an informative article on this subject.

DON'T DEPRIVE CHILDREN OF THIS JOY. Is there one among us who does not recall with pleasure some childhood association in which trees—or at least one tree—played a prominent part?

Perhaps it was the giant oak in which we built a secret rendezvous, reached by a rope ladder—a castle in the air where childhood dreams were woven. Or it may have been a friendly elm, under which tiny tots played at housekeeping, or sailed skyward in the thrilling embrace of the old rope swing.

But whatever the occasion, there remains a feeling of love for the friendly giant which towered so majestically overhead—the birthright of every American child.

Are YOUR kiddies missing this experience? Must they spend their "recess" in a barren school yard? Is there near the home no soothing, shady corner of green lawn where they may retreat from heat and dust?

Trees make life more worth living—especially for the children. Think it over.

TREES SOLD THIS FARM Recently we were advised of the sale of a small ranch in Central California which brought a price considerably higher than that quoted for surrounding ranch lands.

The buyer confessed the deciding factor in his purchase was the beautiful farmstead, planted years before by the far-seeing owner to shade trees and ornamentals.

Aside from all esthetic considerations, trees and shrubbery have a real business appeal.

What's New? — Keeping Abreast of Agricultural Progress

Install Rural Telephones

THE Los Pilitas Farm Bureau Center, San Luis Obispo County, is constructing a rural telephone line 20 miles long. The cost of materials, including posts, iron double-dipped galvanized wire and other incidentals, will total $50 per mile. Labor is to be donated by the members. Second-hand Kellogg phones, costing $15 each, are to be used. Switch charges on the Bell system will be $3 per year.

Boll Weevil's Cousin Here

THE pepper weevil, first cousin to the cotton boll weevil, recently has been discovered infesting bell peppers in the vicinity of Los Angeles and Santa Ana, according to the State Department of Agriculture. There is no insecticide which can be applied as a protective measure, since the life cycle of the insect is carried on inside the pepper.

Investigation of this pest is being carried on by D. B. Mackie, entomologist, who believes it seriously menaces the green pepper industry.

New Fruit Juice Process

LOS ANGELES capitalists are arranging to erect at Covina an experimental citrus juice factory, using the new solar vitalizing process invented by Dr. N. F. Hazeldine of Los Angeles. It is claimed that not only fruit juices, but also all other food products are preserved perfectly by the action of light passing through a specially constructed sheet of glass.

Local citrus associations and the citrus by-product plant at San Dimas, as well as Covina citizens, have promised the fullest co-operation in testing the new process.

Criticising Co-operatives

ACCORDING to a recent Maine law, it is a crime to solicit or persuade any member of a co-operative marketing organization to break his contract, or to receive his products for sale.

It also is made a crime, punishable by a fine of $100 to $1000 for each offense, knowingly and maliciously, to spread false reports about such an association. Such offenders also are liable to a civil suit in the penal sum of $500 for each offense.

According to the California Produce News, there is great dissatisfaction with the operation of the recently organized association of Maine potato growers.

Will Hold Dairy Schools

A SERIES of dairy schools will be held in Los Angeles County the week beginning March 10 by the Extension Service and the Farm Bureau. Prof. W. M. Regan and Dr. G. M. Hart are expected to be among the dairy authorities who will deliver instructive lectures at these meetings.

Prof. Regan, who came to California from an Eastern State a year ago last fall, is so well pleased with his new home and his work here that nothing, he declares, would persuade him to return to the Atlantic Coast, although his labors there were attended with conspicuous success.

Premium for Tested Hogs

LEADING meat packers now are paying a premium of 10 cents per hundredweight for hogs raised in counties free or nearly free from bovine tuberculosis, according to the U. S. Department of Agriculture.

Seven million two hundred thousand hogs slaughtered under Federal inspection last year showed tuberculous infection, in addition to immense numbers killed without such inspection.

It is now recognized that hogs catch consumption from cows and other domestic animals, a fact which serves to emphasize the importance of TB testing work.

Selling Australian Oranges

THE possibility of Australia becoming a competitor of California in the world's citrus fruit market is indicated by the fact that the area planted to lemons and oranges in the Island Continent increased from 15,649 in 1913 to 29,416 in 1920. The yield in the year last named was 2,263,169 bushels.

The crop is packed in the same style of box used in California. Fifty thousand cases were exported the present season, mostly to London. To land a case in that city costs $3.50, of which $1.58 goes to pay transportation charges.

Australia is larger than the United States, but has a population of only 7,000,000.

Secure Daily Market Reports

DAILY livestock market reports may be secured by California citizens upon application to Room 62, Appraisers' Building, San Francisco, or Room 203, Livestock Exchange Building, Los Angeles. Fruit, vegetable, poultry and game market reports may be secured from Room 1, Ferry Building, San Francisco. Cold storage and warehouse reports on potatoes, onions and apples are issued semi-monthly from the same office.

Special daily market bulletins are issued on apples, potatoes, onions, lettuce and cauliflower handled in the State, as well as total daily shipments for the entire United States.

Farmers Interested in Europe

"PENDING the settlement of the reparations question," declares Gray Silver, Washington representative of the American Farm Bureau Federation, "American farmers will continue for a long time to suffer losses that will total as much as or more than the whole amount at stake, because of the resultant damming of the trade channels through which our excess products normally flow.

"American agricultural interests extend to every country that consumes their products. Whatever affects the world market affects us and we believe our Government should vigorously address itself to the settlement of questions that disturb our market."

Planting Million Redwoods

THE California Redwood Association is growing 1,500,000 redwood seedling trees at Fort Bragg (Mendocino County), and at Scotia (Humboldt County). Nearly 1000 acres will be planted this year by the association, as the beginning of a huge reforestation program which has been planned not only to keep pace with the amount of redwoods cut for lumber, but ultimately to cover the acreage deforested in former years. Three thousand acres is to be planted next year.

A period of 65 years is required to bring redwood trees to profitable commercial size. It will be seen, therefore, that the public spirited citizens who are behind this enterprise are planting for posterity.

Keep Hog Prices Secret

PRICES secured by the California Farm Bureau Marketing Association for hogs sold at auction no longer are published. Price publicity recently was discontinued because it enabled outsiders to sell hogs to advantage, without sharing auction expenses. When a non-member learned what Farm Bureau pork producers received for their hogs, he asked and received the same price at private sale, without having to pay the two per cent commission.

"Farm Bureau hog auction sales have proved a success far beyond our fondest expectations," states Roy M. Filcher of Kings County, president of the Association. "Hogs now are selling for better prices in the San Joaquin Valley than in any other place in the United States."

Milking Machines Succeed

SOME conspicuous successes with milking machines recently have been reported by Paul Olson, cow tester, who believes these implements have a place in the modern dairy and in many cases add to cleanliness and amount of milk produced. The Piers dairy of grade Holsteins, Palo Alto, for example, makes record time in milking by machinery and transferring the fluid, after cooling, to sealed bottles.

The first reported effect of using milking machines in the F. M. Helm dairy of registered Holsteins was to increase the herd production 20 gallons per day.

Olson has had large experience with milking machines in the East, where they are considered great labor savers, and therefore is glad to give this information regarding their use.

Ben Gonnadoit Says

SEEMS like th' wimin folks is gettin' more discontented all th' time. My wife complained she was gettin' round shouldered f'm carryin' so much water, so I offered t' stop my work an' go to town an' buy her a shoulder brace, but instead o' bein' grateful, she threw a bucketful of cold water right in my face! Luckily, through years o' self-control, I've learned t' hold my temper. An' anyway, if I'd said anything she'd prob-ly a throwed another bucketful at me!

I bin intendin' t' cull our poultry for some time, but they're so scattered all over th' place, I ain't been able t' round 'em up. Howsumever, I'll have t' fix some gates an' fences first so as t' have a place t' hold 'em. Guess prob-ly I'll let it go now until next fall.

We must have f'm fifteen t' forty layin' hens now. Can't tell, though, f'm th' number of eggs we gather, because they steal nests in th' most out-o'-th' way places. I reckon we lose about half what they lay. Every time I move a bunch o 'trash, I find a lot o' spoiled eggs'

I ought t' clean up th' place a bit, but thought I'd wait an' see whether th' bank is goin' to renew my loan. Ef they won't, I reckon I'll lose th' ranch anyway, so why waste time dollin' up?

I used t' be able t' borry farm implements f'm my neighbors, but seems like lately every time I ask fer anythin' it's broke or out o' order! Sure is a hardship t' be surrounded by such shiftless people!

I had made all my plans t' gather up th' manure around th' barn this month an' spread it in th' orchard, but along come a heavy rain an' washed most of it into th' creek. Here it had been accumulatin' for three years and that cloudburst had t' come a few days before I was goin' t' do th' job! Ain't that jest my luck?

This business o' testin' cows for tuberculosis don't appeal t' me. I reckon they'll force me t' do it some day an' I'll lose my whole herd. But I'm goin' t' stand up fer my personal liberty til th' last ditch, so help me!

They call this a free country, but they standardize an' regulate an' inspect an' condemn until a feller kaint call his soul his own. Last year they fined me for puttin' th' best apples on top o' my pack, an' th' cull fruit underneath! What is th' pore farmer coming to?

BEN GONNADOIT

Controlling Lesser Bee Moth

By J. D. BIXBY, Sr.

IN this climate, comb honey is very quickly attacked and injured by the Lesser bee moth unless fumigated. My method of fumigating is to have a bee-tight house in which there is a fumigating closet holding fifty eight-frame supers. When the supers are employed from the hive they are placed at once in the closet and sulphured. I use one-half pound of sulphur to 128 square feet of space, and keep supers in the fumes all night.

J. D. BIXBY SR.

After supers are removed from the closet they are stored in the house, to be emptied and cased at leisure. I have rarely had a section injured after this treatment—never, if properly sulphured—and have had them in displays for years at a time.

I adopted this plan after failing with another plan, which is to remove only what supers you can unpack before nightfall. If any remain, place sheets of paper between and cover carefully.

I think this method is not effectual because the female moth deposits her eggs in the propolis of cracks between the supers, there to hatch when conditions are favorable.

I have proved, apparently, through repeated experiments, that eggs of the Lesser bee moth hatch from the bodies of bees that have died among the sections—both worker and drone bees, especially the latter—when the supers have not been fumigated. Probably these eggs hatched as above stated, from three to twelve individuals in most cases. How did they get there? Through the consumption of pollen in food?

We know that the Galleria lives on the organic matter in the combs; possibly pollen, cocoons and incidentally perhaps the wax of brood combs, rarely attacking foundation or new, unused combs. Such combs must be unapproachable by the moth, because of the cluster of bees. How, then, are the eggs placed there, except they adhere to the feet of incoming bees and are mixed and packed away with the pollen?

Have you ever had reason to think that there might be, here in the warmer parts of California, a still smaller wax moth than these Lesser bee moths? I have no definite knowledge of it, but had a curious experience which indicates this fact. During the winter I bought an old apiary which had a lot of supers with sections in all stages of completion; some only starters of foundation, others apparently used several times over in years past. These were all scraped out and the wax pounded down into a couple of nail kegs. The latter were placed in a dry cellar and left for three or four months.

When taken out for rendering, the wax was found reduced to dust; a light brown, impalpable, flour-like dust. No trace of moth webs, galleries or droppings. This dust did not burn readily, and showed no sign of the characteristic burning odor of beeswax when thrown on a hot stove. Except in weight it was more like road dust than anything else. What ailed it?

In this climate cakes of wax on the shelves or in the warehouses of dealers during the warm season often become badly infested with the Lesser bee moth. The only remedy I have discovered so far is remelting. The more burned sugar and general refuse left in the bottom of cakes after trimming, the worse the moths are.

Imperial to Have Grape Growers' Contest

Orchard and Farm Will Present Silver Loving Cup Next Fall to Fortunate Winner

WHAT is believed to be the first grape growers' contest ever held in California is being promoted by Assistant Farm Adviser Ellis of Imperial County.

RAYMOND ELLIS

The purpose behind the competition is to improve the quality of grapes, for although famous for early maturity, the Imperial Valley has produced a heavy percentage of the lower grade fruit.

The higher prices commanded by first quality table grapes will, it is believed, more than justify the extra expense or care involved in producing them.

The Editor of ORCHARD and FARM has made arrangements to present a beautiful silver loving cup, suitably engraved, to the grower who is pronounced sweepstakes winner.

"I think the contest will bring out the fact that irrigation and fertilization are the two most important factors affecting quality," says Ellis. "Plenty of water at the right time and fertile soil are necessary to complete success in this locality, because the very fact that the fruit matures so early tends to hold down the size."

By comparing the methods of the winning growers, it is hoped to acquire information as to the best practice under Imperial County conditions, which are different in many respects from those encountered in other localities. The sweepstakes cup, presented by this magazine, will be awarded for the best vineyard in the county. Any grower winning the cup three times will retain it permanently. Ribbons will be awarded for each variety in each section of the county.

There will be three classes of fruit in the contest: Malagas, Sultaninas (Thompsons) and all other varieties.

Awards will be made upon the following basis of points: Quality (price per pound and percentage of fruit culled), 50 points; quantity (tons of fruit per acre), 25 points; growth and health of vine (to be judged in September by a representative of the Division of Viticulture), 20 points; clearness and completeness of records, 5 points.

Questionnaires are being distributed among the growers to be filled out as the season progresses and returned at the close of the contest. On these sheets will be listed grower's name and address, shipping point, variety, acreage, number of vines, soil type, method of pruning, planting distance, dates and number of irrigations, date of plowing, depth of plowing, number of cultivations, what cover crop used if any, kind and amount of fertilizer if any.

It is hoped the grape growers of the valley will give whole-hearted support to this project, in order to bring out the most practical information of value to all concerned.

Agricultural Leaders of the Pacific West

XV. WILLIAM THOMPSON

President Arizona Agricultural Society

A LEADER among the enthusiastic, scientific agriculturists of the Salt River Valley is William Thompson, president of the Arizona Agricultural Society, recently organized at Phoenix. Thompson's hobby is lettuce, and he has shown intelligent interest in this crop by making a great success of its production. He recently told this story of his operations:

"Eight years ago I came from Mexico, where I had been engaged in mining. I selected this location for my future home, securing five acres at Glendale. I expected to retire from active life, but became interested in lettuce growing. My investigations convinced me that the finest class of head lettuce could be produced here and handled at a handsome profit.

"I sold locally at first, but now operate my own five-acre tract and handle the product from seventy-five acres of lettuce grown by neighbors. I supply all the lettuce used by the Fred Harvey Hotel System from Los Angeles to Chicago and also ship to Los Angeles and Dallas hotels.

"The shipping season extends from December 1 to March 1. Last year the net returns from my five acres was $350 per acre; the year before, $400. The average for seven years has been $575 per acre.

Thompson is a great believer in cooperative marketing associations. He sells his crop through an auction company, which, he says, enables growers to dispose of extremely perishable products successfully and get prompt returns.

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Machine Cuts Cost of Harvesting Corn

BY harvesting his milo maize with a "combine," J. J. Strieby, Imperial Valley grain grower, effected a saving of more than $6 an acre as compared with the hand method.

"Mexican labor figured $6.50 an acre simply for cutting," reports Strieby, "while hauling and other expense brought the total up to at least $11.

"With the harvester, however, we were able to cut the grain for $3 or less and allowing $1 for grain lost, there was yet a difference of $6. In figuring this cost, we allowed for gasoline, oil and repairs."

Strieby states that by using tractor power he was able to harvest 20 acres a day with his machine, which makes a 9-foot cut. It was necessary, however, to lengthen the guards. "In harvesting corn, the reel must turn slowly," he explained. "Best results are secured, of course, when the stand is quite uniform, although it is surprising how easily the grain may be handled even when there is considerable variation in length of stalk."

The White Yolo developed at the University of Farm and known for its uniformity is not satisfactory in the Imperial Valley, according to Assistant farm Adviser Ellis. However, the Meloland Experiment Station has developed a type of dwarf milo which many growers have found ideal for that section.

Strieby states a big grower may save as much as $5000 a year by machine harvesting. He now farms a half section of land, also growing wheat extensively.

Baart wheat has not been entirely satisfactory in the valley where it lodges badly. But excellent results have been secured with Hard Federation. Strieby is said to have sold his entire crop of Federation wheat at three cents to other growers for seed. Last year he raised 69½ bushels, threshing 4176 pounds per acre.

STUMP BURNS 270 DAYS

A fir stump eight feet in diameter near Clatskanie, Wash., required nine months to burn. The fire was started by W. F. Schneider Jan. 23, 1923, and the stump fell October 12. Char pitting was the method used to consume the stump and roots. "Slow, but sure," is the motto of the char pitter. Stumps six feet in diameter usually require six to eight weeks to burn.

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HOME FARM HAPPENINGS

By ONE OF US

LAMBS LIKE TAGGED EWES.

All our ewes have been tagged recently. The dirty wool about the hindquarters has been clipped away and any stray locks of wool around the udder cut off. A newly born lamb has a right to be disgusted if it starts to suck a tag of wool instead of a teat. Several large bands of range sheep have been driven through Butte City recently that have been tagged with machine clippers, instead of sheep shears. The machine does a fine, smooth job.

W. S. GUILFORD

One lot of good ewes belonging to Thorp of Marysville going to a range west of Orland to lamb—had been machine tagged.

HOW OUR GRAFTERS WORK.

There are a number of good grafters in our neighborhood—tree grafters. We have no politics, therefore, any other kind of grafter is unknown here. Stuart Garbutt is quite a wizard with the grafting knife. He makes grafts grow in pecans and walnuts, as well as in peaches, plums and other stone fruits—easy work compared with nut grafting.

I saw a fine job of grafting that H. H. (Bert) Rawlins had done on some trees on his place near Butte City. He has a vigorous growth of prune grafts on peach, peach on pearh, English walnut on black walnut and other combinations. This is the way he does it:

A bud stick or scion is whittled into a thin wedge, leaving one side with the bark all on. The limb to be grafted is cut off, the bark raised a little with the point of the knife just where the scion is to be put in, and the scion pushed gently down between the bark and the wood. The bark on the scion must not be broken.

A little parrafin is poured on the stub of the limb, and sometimes a string tied around it.

A large percentage of the grafts grow, many more than are necessary, in most cases.

Bert says he likes to shape a head for an English walnut tree from a single graft, rather than from several.

CLEANING FOY ALFALFA

After it has been seeded two or three years alfalfa in the Sacramento Valley is apt to have considerable foxtail in the first cutting and sometimes some in the second. This is so bad in some places that the first crop is raked and burned.

Foxtail also is very much of a pest when it grows in abundance around the edges of an alfalfa field, where the alfalfa did not make a thick stand. Where an alfalfa field is pastured heavily foxtail becomes a pest more quickly than where there is no pasturing.

Howard Goodman is planning to "head off" the foxtail in a big alfalfa field this season. He has disked and double disked the ground until you can hardly see the alfalfa, then has sown about 90 pounds of oats to the acre.

The alfalfa will come again better than ever, because of the disking, and the oats and alfalfa together should be so thick that the foxtail will be entierly smothered out, for this season. Oats and alfalfa mixed make rich hay.

MAKING RUBBER BOOTS LAST.

You all know what generally happens to a pair of rubber boots after they have been worn in the mud and slop of a barnyard all day. They are kicked off, either on the porch or in a corner of a shed and there they stay until the next morning, or maybe for weeks, months, until they are needed again.

In about one season they crack and leak and are thrown away. Then the manufacturer comes in for abuse.

"Rubber goods are awful shoddy nowadays," you say. "They don't put the stuff in them they used to."

But the real truth of the matter is that leaving dirt and particularly acid manure on boots is the thing that ruins them. If rubber boots are washed thoroughly whenever they are taken off they will last a surprisingly long time. There are some on the ranch here that are six years old and perfectly good yet.

BEST TIME FOR LAMBING.

A question that probably will never be settled is, when is the best time for lambs to come?

If there is early rain and grass starts in October or November, lambs should be born early. If there is no rain all winter—as was the case this winter—it would be better to have the lambs come when the grass does.

To be a 100 percent perfect sheepman one should be a weather prophet of exceptional ability. On places like the Parrott Ranch, where they have lots of hay and plenty of lambing sheds and grain, the lambs are a vigorous, lusty lot and can be kept "coming" until there is grass.

The weather makes some difference, but the Parrotts carry "feed" insurance.

Superintendent W. H. Baber showed me a lot of lambs there a few days ago that are good prospects to win the fat lamb prizes at the fairs—lambs sired by registered and purebred Shropshire rams and out of gond ewes that have been bred on the Parrott ranch under the direction of Jos. Donohoe for many generations.

THE BEST WAY TO PRUNE.

When it comes to pruning trees, "What's one man's meat is another man's poison." In our district there are as many different kinds of pruning as there are orchards. As Wood Yerxa says, "If you plant good prune trees on good Sacramento Valley land, it doesn't make much difference how you prune them—you will grow good prunes anyway."

The fact that everyone gets satisfactory crops of good prunes convinces each individual that his system is right. But in pruning prune trees there are many things to consider.

A. J. Stone, who has one of the best prune orchards in the State, says he would rather have two tons of big prunes than four tons of small ones, therefore he cuts out lots of wood.

Judge Frank Moody, banker, farmer and orchardist of Willows and Glenn County, a close student of tree growth and pruning, instructed Harry Williams to "go very light" with the pruning on the Burton and Moody orchards this year.

This job of pruning suits me perfectly. It is one of the best I ever have seen.

Judge Moody believes that you must have leaf surface in order to make a big, vigorous tree and set and mature a big crop. Leaf surface is cut down in exact proportion to the amount of wood that is cut out in pruning; consequently, he does not take out much.

There are others who have gone to the opposite extreme; have cut away more wood than trees grew last year—not only taking out a large part of this year's fruit wood, but lots of the scaffold limbs grown during previous years.

This always looks to me like a waste of energy—if these limbs are not wanted, why let them start? And if a big, vigorous tree is wanted, why cut it all to pieces every winter?

Trees for the Street

REPLYING to an inquiry from George E. Hanning, Kern County:

In the matter of street trees I should prefer the Plane tree to Black Acacia, although the latter is evergreen and the former deciduous. The Acacia tends to be a shallow rooter; its wood is brittle and easily broken in wind storms; it produces a prodigious amount of litter; it also suckers from the roots where they come near the surface and are injured in any way.

The carob, olive, live oak and valley white oak might be worth your consideration.

My one warning to you, in planting your lot, would be to advise restraint, don't plant too many trees or large shrubs or get them too thick.—RALPH D. CORNELL.

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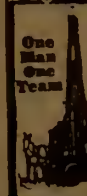

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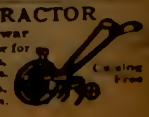

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POULTRY *Pointers*

By W. J. DRYDEN

CONTROLLING TUBERCULOSIS

In order to get rid of tuberculosis of poultry it is necessary to sell the entire flock and clean the houses, spraying the latter with a solution of crude carbolic acid. Then plow the yards after sprinkling the ground with lime. In a few weeks repeat the operation. Healthy birds then may be placed in the buildings.

With the exception of hogs no other animals are susceptible to the poultry form of tuberculosis. As attendants may spread the disease, it is well to arrange the work so that the man handling the flock does not come in contact with healthy birds.

CULL CONSERVATIVELY

Before culling be sure the flock has been kept under conditions favorable for egg production. Do not rely entirely upon any one test for productiveness. If possible, place the culls in a pen and watch their laying a week or two. If your work proves good, then market the slackers.

Before selecting eggs for hatching is a good time to cull the flock. Discard slackers, undersized and deformed birds, also those that reduce the standard of the flock.

CURING SCALY LEG DISEASE

To cure scaly legs, dip the legs in crude petroleum, being careful that the feathers and skin do not come in contact with the oil. Scaly legs is caused by a small mite, therefore care should be taken to see that the petroleum penetrates under the scales to the mites.

Filth, improper ventilation, poor feeding, dampness and the presence of infected birds are the most common causes of poultry diseases.

TURN EGGS FREQUENTLY

Experiments prove that better results are secured by turning eggs in incubators two or three times a day instead of only once in that time. The Pioneer Hatchery people have proved to their own satisfaction that it pays them to turn eggs five times daily. They, of course, use automatic turning devices.

POULTRYMAN'S NINE POINTS

The U. S. Department of Agriculture gives the following as the nine essentials of profitable poultry production.

Keep better poultry.
Select vigorous breeders.
Hatch the chicks early.
Preserve eggs for home use.
Produce infertile eggs.
Cull the flock.
Keep a back yard flock.
Grow your poultry feed.
Eat more poultry and eggs.

Building Up Poultry Industry

(Continued from Page 2)

pounds linseed meal, 2 sacks bran. This is kept before the birds in hoppers at all times.

The grain ration is fed one-third in the morning and two-thirds in the evening. The mixture is as follows: 300 pounds cracked corn; 400 pounds wheat, 300 pounds whole barley, 125 pounds gyp corn, 200 pounds whole corn, 46 pounds hemp seed, 50 pounds whole oats. Combined with this scratch feed is 15 pounds oyster shell and 10 pounds grit. These ingredients are given separately in hoppers, as well.

Kale and barley are fed mornings, alternately. Steiner never feeds sprouted grain nor does he cut the green stuff when less than eight inches high. He believes the more tender feeds sometimes cause sour crop.

He uses no "dope," or medicine for the general flock. Birds with colds are isolated and given Epsom salts in the proportion of one pound to six quarts of water, in the drinking fountains.

Steiner, too, is a believer in fall hatching. In January he had 300 youngsters which looked most promising. He expects to produce at least [illegible] good pedigreed cockerels this year, [illegible] well as several hundred pullets. He receives from \$2.50 to \$50 each for breeding cockerels. Surplus eggs are marketed through the Poultry Producers Association. Steiner is developing all possible sources of income, including sale of foundation stock, hatching eggs and market eggs.

"I believe in having what my customers want," he explained. "The ideal poultry plant should not be like the little corner grocery which is so frequently 'out of' some desired article. [illegible] supplying pens, trios, single birds [illegible] foundation flocks of different ages [illegible] prices, I make a good many sales [illegible] might otherwise be lost."

[illegible]ner is line-breeding to a considerable extent, using his own typiest [illegible] to mate with his heavy-laying [illegible]. Professor Lippincott has [illegible] quoted as saying that of many [illegible]s he has visited in California, [illegible] Hayward man is the only one who [illegible]t going outside of his own flocks [illegible] breeding birds."

[illegible] TRAPNEST RECORD

[illegible] the oldest flock in point of [illegible] trapnesting to be found in [illegible] is that of Boehm and Noel. [illegible] have been keeping records since [illegible]. They have birds for which [illegible] records of five generations are [illegible]. These breeders ship cock[illegible] many widely separated points, [illegible] Petaluma. Last year more [illegible] breeding cockerels were sold [illegible] average price of \$2 each.

[illegible] poultry buildings on this ranch [illegible] in an old orchard. The own[illegible] great believers in free range. [illegible] trapnest house is opened at [illegible] day to allow the hens [illegible] About 3500 [illegible] this manner. [illegible] formerly pro[illegible] but now is [illegible] support the [illegible] For[illegible] truck crops [illegible] business

has monopolized the time of the partners.

Electric lights are used in the laying houses occupied by the general flock, but not for the breeding hens.

The buildings, although of the older type, are a good example of the enduring value of shingle roofs. "In California the roof is the most important part of the poultry shelter," Noel asserts. "And I am thankful we have not attempted to get along with paper roofing all these years. I believe many of the newer houses will need new coverings before ours do."

The Boehm and Noel plant represents an investment of about \$35,000, the land being now too valuable for fruit growing, as it is in the town of Hayward. Boehm and Noel make an annual net profit of "at least \$1.50 per hen," according to their cautious estimate.

But although estimates of all kinds vary, the Hayward poultrymen are unanimous in citing the advantages they enjoy. The weather is cool the year around and there are less cold winds than in some sections. Their proximity to the Bay cities solves the marketing problem and their reputation for quality, due to careful grading and proximity to consuming centers, gives Hayward breeders a premium over regular egg prices.

Much of the feed used by Hayward producers is purchased co-operatively through an association organized primarily for this purpose, and prices for grain are said by local breeders to be lower on the average than in any other California district.

Yes, indeed, Hayward is decidedly on the poultry map! Just because its boosters haven't crowed or cackled much and told the world about it, we must not conclude they are asleep. They have been too busy developing their industries. Look to your laurels, Petaluma, Van Nuys, Santa Cruz and all other districts that point with pride to poultry products!

Flappy-Eared Rabbits

JAMES MINTON, Los Angeles County, wants to know why his young rabbits' ears become "floppy."

I do not think that floppy ears can be considered a rabbit disease. It is caused by lack of vitality in the parents, which have been bred too close; that is, brother and sister may have been bred together, or the doe has been bred too often and allowed to bring up too many youngsters.

The best plan is to get another buck not related to the does, or, if the stock is old, start over with young animals that you know are not inbred.

You may breed the does back to their father or grandfather, but not brothers to sisters, or cousins.

Four litters per year is all you should allow your does to rear. Let the young live with the mother two months.

Do not on any account lift your rabbits by their ears. Take them up like you would a kitten by the skin at the shoulder. Heavy stock should be supported by resting the animal on the other hand under the rump.—GEO. GREEN.

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Good-bye to Dairy Drudgery?

California Creamery Official and Milk Expert Sees Big Improvements Coming in Production Methods

HOW crude are methods of producing milk as compared with those used in the manufacturing end of the industry! Have you ever tried to visualize the dairy of the future?

Perhaps no one has given more thought to this question than B. H. Rawl, for sixteen years executive of the Dairy Division of the U. S. Department of Agriculture and now Assistant General Manager of the Golden State Milk Products Co., largest enterprise of its kind in the West. This concern has nineteen active producing plants and does an annual business of $15,000,000 to $20,000,000.

B. H. RAWL

Rawl has an analytical, logical mind with an inventive turn. Recently he described the ideal dairy plant as he visualizes it.

"The milking barn will be immaculate, but very small," predicted the veteran milk products expert. "Possibly it will have space for not more than ten cows. It will be white-enameled, well ventilated, fly-proof, and frequently disinfected. A flushing system, operated by a simple lever or foot-pedal, will enable the white-clad attendant to keep it constantly fresh and clean.

COWS KEPT OUTSIDE

"The cows will be bedded in a separate shed or cheaply constructed stable, with dry floor, good tight roof, and simple feed racks. The animals will be washed or brushed before they are admitted to the milking room, where no roughage, if any feed, will be given."

Milking, of course, will be done entirely by machinery, as Mr. Rawl sees it. But the so-called "releaser" system will be in vogue. With this equipment the milk is not exposed to the air from the time it leaves the cow's udder until it enters the cooler.

But how will it be possible to keep a check on production? Ah, that's easy! An automatic weighing device will record the yield of each cow as the fluid is held in a "trap" until released and started on its way through pipes to the milk house.

Here machinery will do most of the work. Automatic refrigeration will be in vogue. Cooling, aerating, separating or bottling will involve little physical effort. Gone will be the dirt and drudgery which now make dairying so unattractive to many farmers.

Instead the milk producer, already respected because he has a regular cash income and pays his bills, will be envied for the pleasure and satisfaction he will derive from his occupation.

But not only in handling the milk will he be relieved of many cares. "We have hardly begun to solve the physiological problems of dairying," Rawl points out.

RESEARCH WORK NEEDED

"Our one big need now is to eradicate tuberculosis. All agencies must co-operate with the State and Federal authorities to stamp out this dread disease among dairy cattle. Incidentally, here in California we have the bloat problem to deal with. Abortion must be conquered, too. We have made much progress along these lines, but there is yet plenty to be done. Professor Regan, now attacking these problems at the University Farm, should have more funds and more help, and also deserves the whole-hearted support of the entire industry."

Another factor capable of much improvement, especially in California, is that of feeding, this authority reminds us.

"Is it more profitable to pasture alfalfa than to feed it as hay or to 'silo' it green? Many producers would use the latter method providing it did not involve so much labor and expense."

It is known that Mr. Rawl has presented to the big farm machinery manufacturers the need of some device for handling green feed on a large scale. "Why not a combined mower and loader?" he asks. "In many cases cattle would be better off if they did not have free run of the pasture; there would be less bloating and no doubt the milk yield would be higher—not to mention the saving through prolonging the life of our alfalfa fields."

But we are feeding too much alfalfa, anyway, in Rawl's estimation. "Perhaps we shall learn how to avoid the typical alfalfa flavor which sometimes makes California milk objectionable," he suggests. "Undoubtedly more ensilage and properly balanced concentrates will be used. But feeding experiments conducted in other States have little value in California, where our conditions are so different.

TESTING TO BE UNIVERSAL

"Then there is the matter of testing. Rawl believes it is only a matter of time until no dairyman will think of maintaining an untested cow. "What we need in this State," he maintains, "is not more cows or more acres devoted to dairy farms, but rather heavier production per cow and per acre. We must cut down the overhead and weed out all the boarder cows.

"Yet I do not see any danger of overproduction as long as we are increasing our exports at the present rate and at the same time gaining so rapidly in population."

One of the strongest supporters of the California Dairy Council, on behalf of which he has done much speaking and other public work, Rawl sees in this organization the greatest factor for improvement of dairy production, as well as manufacturing and distributing methods.

"Aside from the work done by the Council in increasing the consumption of milk, which alone has been of inestimable value to the producers, is its constant effort to raise the standards of the industry.

"There was a time when the dairyman was looked down upon even by his fellow farmers as a sort of menial drudge. This is all changing. Dairying in reality is the highest type of agriculture because milk and milk products represent the highest type of food, essential to the proper development of children and to the health of all human beings throughout the world."

ORCHARD and FARM readers who have attended dairy meetings recognize in B. H. Rawl one of the outstanding figures of the industry. He and Sam Greene, popular head of the Dairy Council, have delighted thousands of hearers with their brilliant and witty speeches on behalf of the dairy cow. Rawl's views, therefore, even when attended by flights of fancy, embody more than ordinary significance.—J. C. K.

What to Feed a Hog

AN ORCHARD and FARM reader asks: "What shall I feed my hogs?"

A letter addressed to the inquirer asked: "What have you to feed them?"

At first thought this reply may appear impertinent, but it is far from that. It is assumed that any one having hogs to feed must have a fairly good place to keep them, and some kind of feed. Without these essentials I am sure any hog grower in California will agree that the inquirer might look about and find some better thing to do than raise hogs.

But with a place to keep hogs and some grazing or cheap feed available, anyone would be looking about for some other feed with which to supplement that on hand. In order to make a practical suggestion it would be necessary to know what the conditions are.

For instance, on the Hauser Stock Farm at Blythe it has been found very profitable to supplement alfalfa and barley with tankage from the Hauser plant in Los Angeles. Farmers in Northern California who have range in brush land and alfalfa grazing, buy barley with which to finish their hogs. And barley farmers who let their hogs sort of "raise themselves" until there is an abundance of barley stubble and get them about finished for market in that way, pen them up and feed them all the barley and tankage they will eat for a finishing period of two to four weeks.

There is a place on almost every farm in the State for a few "by-product" hogs that can be looked after at no additional expense and that will grow largely on things that would otherwise go to waste.—W. S. GUILFORD.

Common Sense Pruning

(Continued from Page 5)

University of California was in charge of the meeting. The principal trees used for demonstration were apricots, peaches, pears and prunes.

It was indeed gratifying to see that common sense pruning was advocated, for at this demonstration, apricot trees on a long pruning block were headed back from one-third to one-half of the new growth, regardless of the fact that in some cases no strong laterals were convenient nor was the heading done for the purpose of subduing one side of the tree. Rather, it was general for the entire periphery.

This system, it was explained, was more applicable to apricots in the Central and Coastal counties. If this treatment had been given apricots before long pruning advocates two years ago they would have held up their hands in horror, but now it is common sense that guides and leads the way.

It has been stated by various horticulturists that pruning is only one of several factors in the production of first quality fruit. That being the case why should the fruit growers of the State of California be divided into two large groups according to the style of pruning they are practicing?

California has developed standardization for the marketing of fruits and vegetables and we as growers abide by the standardization rules very religiously if we wish to get the best prices. Then why not standardize our pruning?

There can be only one best system and that is the system that is applicable to all conditions and sections of the State, regardless of any soil, weather or other local conditions. In my estimation, the only system that fulfills the above qualifications is "Common Sense Pruning."

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Prosperity Returns to Imperial With Dairy Cow

Unique Methods Are Described

IMPERIAL VALLEY dairy farmers experience many difficulties, to be sure. But they enjoy some unusual advantages, which have caused a number of producers to return to the Valley after having sold out and tried dairying in northern counties. The good old cow is looked upon in Imperial as a sort of "life-saver."

By ALBERT J. MASON

CULMINATING in a successful and inspiring "Dairy Day" celebration at El Centro, the year 1923 witnessed remarkable development and improvement of the milk producing industry in Imperial Valley.

Dairymen in other districts would find much of interest in this irrigating land, where irrigation has wrought magic in transforming former desert wastes into one of the world's garden spots.

The Imperial Valley dairyman can get along with perhaps less equipment than the producer in any other part of the world. In fact, to the uninitiated observer it would seem as though most of the dairying is carried on in a very crude manner. Many producers do not even have milking barns. One large rancher does the milking in a eucalyptus grove, which, because of infrequent rains, is seldom muddy. Many have cheap sheds, open at the sides, and even those who have installed better equipment use a very simple building, consisting principally of roof and concrete floor, with sides entirely or partly open.

LOW PRODUCTION COST

There is little doubt that milk can be produced at less expense in the Imperial Valley than anywhere else in California. This is due not only to the use of inexpensive equipment, but also to low-priced land, winter pasture, heavy production of feed per acre, and climatic conditions tending to induce maximum milk flow the year around.

The dairy cow has been called the "backbone of Imperial Valley agriculture," and, in fact, is given most of the credit for saving the valley after the disastrous cotton slump and general agricultural depression of 1920.

Many farmers who frankly do not like dairying are in the business now because it seemed to offer the best and quickest way out of their difficulties. One of the "pioneers" (as pioneers go in this new land—he has been there nearly 20 years) is S. E. Robinson, who owns 200 acres near Brawley. After having raised field crops extensively for years, he tried dairying for a considerable period with good success. Then, tiring of the business, he sold out and went in for cotton, winter vegetables and other "bonanzas."

DAIRYING SAVES DAY

"But I had to come back to the dairy cow and she is pulling me out, too," said Robinson recently in relating his experiences. "I know the dairy will pay my expenses and increase the fertility of the soil so that I can safely go in for other lines at the same time."

Robinson now milks from 25 to 40 cows, and keeps hogs to consume the skim milk. He also raises grain, lettuce, peas, cantaloupes and other special crops. Mrs. Robinson has one of the finest flocks of White Wyandottes in California, and they not only furnish meat and eggs for the ranch, but also pay the grocery bill and give a little "pin money" besides. This breed, although comparatively small in numbers in California, appears to be ideal for ranch purposes.

The Robinsons are typical of the substantial people who have had faith in the Valley and have remained true to that faith. Both are very active in Farm Bureau work and despite the many duties and responsibilities of their business, are always able and willing to give their time to projects designed for the general welfare.

Robinson took up his land originally as a homestead. He now has 70 acres in alfalfa, which furnishes both hay and pasture for the dairy cows. He is a member of the cow testing association and like many other producers in the Valley, has increased the average production of his herd considerably.

It is only within the last two years however, that substantial progress along this line has been made throughout the Valley. To Assistant Farm Adviser De Tar is given much of the credit for improvement. Since he assumed his position in May, 1922, when practically no testing was being done, he has organized several units, which keep three testers busy. An average of 2400 cows were tested throughout the first year.

REMARKABLE TESTING RESULTS

In this short time the average production has increased from 174 to 210 pounds of butterfat. Figuring this average increase of 36 pounds at 50 cents a pound, this means a gain of $18 a cow or nearly one-half million dollars a year. Reducing it to terms of the individual, there has been an increase in the income of the average dairyman of $522 per year.

Mr. De Tar is working to improve dairying methods. Because of the abundance of hay and pasture, producers have been induced to get along without concentrates and sometimes the cows suffer from the lack of roughage, in many cases being moved from pasture to pasture with consequent loss of efficiency and poor results.

The average dairyman down here by the size of his hay stack," says De Tar. "And we are recommending not only that more hay be fed, but also that more silage be used. Furthermore, we have found that it pays to feed grain to the heavy producers. If every dairyman in the Valley would provide enough feed we could increase our total production one-third to one-half."

Of the 900 odd dairymen in the Valley, less than 10 per cent are using silos, it is said. But from the experience of these few, it has been found that a good supply of ensilage is almost as valuable for winter feeding in this warm country as in the East. Some farmers who believe pasturing injures their alfalfa depend upon silage entirely for winter succulence.

A number of producers have pit silos, and several have constructed metal and wood-stave containers above ground. But for the standard type, the cement stave design is said to have given most satisfaction. Honey sorghum is the principal ensilage crop in the valley. As a rule it is fed from October until early spring. However, a few ranchers who have provided a sufficient supply for summer use are enthusiastic over its possibilities when the heat shortens the pasture period.

CREAMERIES CONSUME PRODUCT

Comparatively little whole milk from the Imperial finds its way to the ultimate consumer. More than half of the total production is handled by the creameries of the Milk Producers' Association, a co-operative organization, while the California Central Creameries, Inc., has a modern plant at El Centro which turns out one and one-half to two tons of butter a day and returns nearly $1,000,000 annually to the farmers. In addition, several smaller concerns are represented.

The Imperial Valley milk producer finds a ready cash market for his product, which is picked up by motor trucks operated by the creameries and for which he receives his check weekly.

Reliable statisticians place the number of milk cows in Imperial County at nearly 27,000, with a total annual butterfat production of more than 6,000,000 pounds. During the year 1923, the dairymen received $3,259,537, which, going into circulation weekly or monthly throughout the valley, did much to oil the wheels of business and lift the cloud of gloom which now is almost completely dispelled.

ARCATA'S PRODUCTIVE COWS

In the vicinity of Arcata (Humboldt County) there are 7000 milk cows, which produce $1,500,000 worth of dairy products annually. In this district there are 34,000 acres of farm land, the best of which is valued at upwards of $500 an acre for dairy purposes. Most of it is located in the Mad River Valley. Considerable areas of salt marsh tidelands have been reclaimed.

FEWER HOGS BEING RAISED

During the past 10 years the number of hogs in the world decreased 36,000,000 or 14 per cent, acording to the U. S. Department of Agriculture. In this country the number of swine increased from 59,000,000 to 63,000,000 in the past nine years.

Above—Imperial Valley winter scene. Thousands of cows are wintered on alfalfa pasture, supplemented by hay.

Right—"Vern" De Tar, popular livestock specialist of the Imperial County Farm Adviser's office, who has done much to improve dairy methods.

Below—A typical Imperial Valley milking barn.

Here is Mrs. Robinson with one of her prize White Wyandotte hens. At right is Mr. Robinson, ready for field work. Note "stripped" harness, easily removed for noon feeding.

FARM KIDDIES WORK, PLAY

This typical country boy is happy because there are so few small tubers in El Monte's spud crop.

"All aboard the Everlee special," say these happy Hawthorne children, at the V. Shaw ranch.

Potting and bedding plants appeals to this youthful horticulturist, who is an expert.

No, these tiny tots have not been robbing a bird's nest, but are admiring a brood of little chicks.

This quaint looking stand is a South American llama, a beast of burden, good for wool and meat.

The work team appears well content to be held by this little lad, who likes to help daddy.

Country girls learn to cook at an early age. This little miss makes a learning loaf.

The colt being fed by this little lassie belongs to Joe Swisher, Niswel Rancho, youthful Hawthorne County dairyman.

ORCHARD *and* FARM

MARCH 9, 1924

This Peach Story Is a "Whopper"—But True!

Big Fruit Brings Fancy Prices

SAN DIEGO COUNTY points with pride to the achievement of A. W. Johnson of Lakeside, whose reputation for producing enormous peaches of superlative quality, has made his ranch famous. This grower has solved the marketing problem by passing up the middleman entirely.

By ALBERT J. MASON

ASKED to name his greatest asset, the average California fruit grower will mention soil, water or climate. But recently we visited a producer who gave first place to—his mailing list!

"There was a time," he related, "when I got down on my knees (figuratively speaking) and begged the dealers to take my fruit when it was ripe—at their own price. Now I set my price and my customers come after the fruit or order directly by mail."

The list of names, compiled by A. W. Johnson of San Diego County, was not acquired, however, in any haphazard manner. It represents many years of hard work, good salesmanship and strict adherence to high business principles.

Johnson first sensed the value of the personal touch when a photograph of some of his big J. H. Hale peaches and a brief article about his ranch appeared in a San Diego newspaper. The next day a steady stream of visitors motored to Lakeside to see for themselves.

VISITORS LEAVE CASH

They came, they saw, and, almost without exception, insisted on leaving perfectly good coin of the realm and loading their cars with the luscious fruit—at several cents per pound above the market price. Last season the Hale peaches averaged 9 cents a pound and many weighed a pound or more.

During the harvest season the Johnson place resembles the scene of a county fair. One Sunday last summer the owner made it a point to count his visitors. Before darkness brought surcease to his weary bones, exactly 622 persons had come and gone! But what a sweet tune the cash register had played all day!

Now, every pound of the "Number One" fruit, which is not sold in this manner is sent by express to mail order buyers. Johnson has many customers in Los Angeles and San Francisco, as well as other California points, and has shipped even to Salt Lake City, Denver, Chicago and New York.

"It is not satisfactory," he admitted, "to make long distance shipments of fresh peaches in small lots, although I have done it successfully. However, I receive very few complaints concerning consignments within the State."

MAILS ILLUSTRATED CARDS

This enterprising grower has on hand a large supply of attractive postcards, illustrated with photographs of his fruit. As the crop is about to ripen he selects a suitable number of names each week from his list, and sends the cards with such an inscription as this: "The big Hale peaches will be ready next week." Prices are quoted and it is suggested that orders be placed immediately. The response to these cards taxes the ability of the Johnson family and their helpers to fill the orders on time.

There are also Salway peaches, apricots, persimmons, Burbank plums, Satsuma plums, French and Sugar prunes and some citrus fruits—all of which are sold directly to consumers—but the Hale peaches are the best money-makers.

In addition to his individual peach customers, Johnson has developed a profitable outlet through a large resort hotel, which annually contracts for quantities of the fruit.

As a special advertising "stunt" he arranged with the hotel management last season to supply one peach to each guest room. These selected specimens, accompanied by the grower's cards, brought him many new customers.

This progressive peach producer, it will be seen, loses no opportunity to attract visitors and, of course, he endeavors to give personal attention to as many callers as possible.

ENJOYS MEETING VISITORS

"But don't you get tired of showing people about and answering questions?" he was asked.

"No, indeed," was the response. "I like to meet people and I had rather talk peaches than eat any day. Then, too, I make many interesting acquaintances and valuable friendships.

"During the harvest period we always make it a point to show our new visitors the orchard—or at least one or two of the best trees with the fruit on. Also we try to get acquainted with them and make them feel we are glad they came.

"It is surprising how interested many city visitors are in methods of production, varieties and similar points which one would expect only fruit growers to investigate.

"Many of our callers are mail-order customers who have been referred to us by others, and who, when visiting in San Diego, make it a point to come out and see for themselves where the big peaches grow."

One of Johnson's visitors was a wealthy New York woman who had sampled his fruit at the home of a friend in San Francisco. She came out, as she said, expressly to "shake hands with the man that raised those enormous peaches."

CULTURAL METHODS EXPLAINED

Now, then, what makes the peaches enormous? The variety, of course, naturally attains a large size, but the real secret lies in thinning. Johnson's formula is: "Thin until you think you've thinned too much, then go over the trees again! Two, three and sometimes four times the trees are thinned—up until the time the pit hardens.

Another factor is fertilizing. Manure is applied to the orchard regularly, and a cover crop is grown each winter.

Cheap irrigating water, obtained through a mutual water company, also helps. Johnson does not "size" the fruit at sacrifice of quality, however, by forcing with water. None is applied for three weeks before ripening.

"It would be of no avail to attract many customers and then disappoint them by selling flavorless, watery fruit," he explains. "We not only do everything possible to produce size and flavor, but we also grade very carefully."

A well fitted packing house is part of the ranch equipment. In addition to the regular lug box, a half-size and quarter size box is used. The latter holds just eight peaches. The shook is purchased to order, stamped with the producer's name and address, and made into boxes during the winter season at odd moments. A card is placed in every box when packed.

For several weeks during the busy season Mr. and Mrs. Johnson, their son and three assistants are kept busy picking, packing, shipping and waiting on customers.

Yet less than ten acres is devoted to the peach enterprise. The reader who may have visualized a large orchard property is due, then, for a surprise.

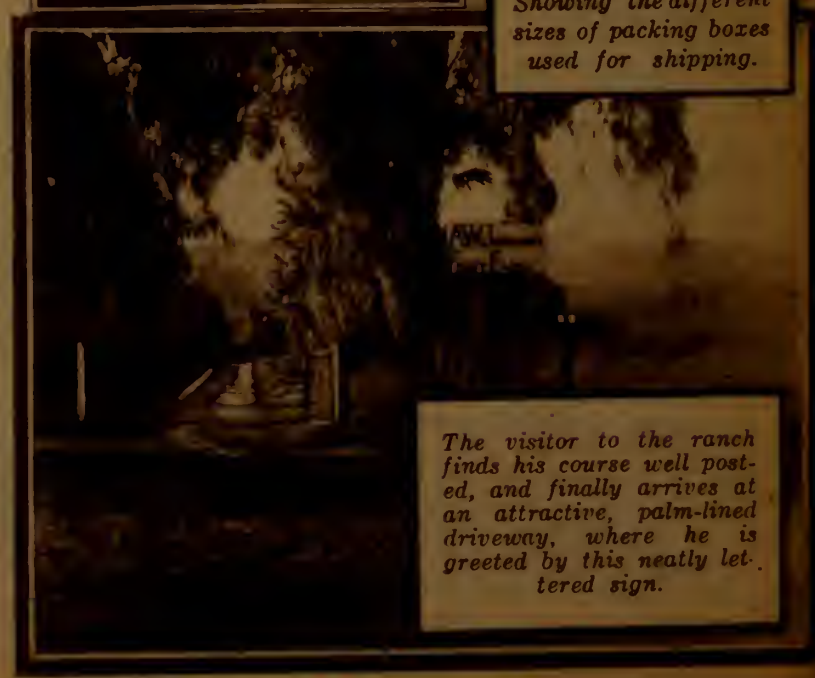
There are less than 500 Hale trees and many were top-worked just three years ago last September. Yet last season 300 of these trees averaged $5 each and the total gross return for all peaches was $650 an acre.

The ranch totals 26 acres, but not all has been planted to fruit. An old apricot orchard, now in its thirtieth year, still makes *(Continued on Page 9)*

All products of the Johnson ranch are famous for size. Even the son of the San Diego fruit grower contributes to the general avoirdupois. Young Johnson, shown above helping his father hold a branch laden with ponderous peaches, is six-feet-three, and weighs more than 200 pounds!

At the right is another important member of the family—"Bob"—who is just dog, but who has more than the usual canine intelligence. He is relentless with fruit thieves.

Above—Mr. Johnson pruning one of his fruit trees. Left—Showing the different sizes of packing boxes used for shipping.



The visitor to the ranch finds his course well posted, and finally arrives at an attractive, palm-lined driveway, where he is greeted by this neatly lettered sign.

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
MARCH 9, 1924

Practical Pointers on Planting the Small Lot

Common Errors and How They May Be Avoided—Artistic Effects Cost No More Than Others—"Before and After"

By RALPH D. CORNELL

Master in Landscape Architecture

IT SEEMS to be a human frailty and a perfectly normal condition for the average person who is developing his own home place, to become so intent upon the details of his work that he forgets the larger truths that should govern any attempt at decorative art in the garden.

Particularly, in lines of endeavor that are new and untried, is it true that the conscious effort to master the technic of the operation prevents the operator from giving his attention to the broader aspects of the matter at hand. So it is with the average garden amateur. The problems of culture and care, and the interest of growth and development are so absorbing that he loses temporarily the capacity to consider whether or not his arrangement of the plants is made in a way to glean the best possible garden effect. His attention is all on the processes of operation, not on a clearly-visioned picture towards which he is working.

RALPH D. CORNELL

Another handicap of the beginner is his lack of knowledge of the habits and characteristics of plants, which lack prevents him from knowing whether he is grouping and arranging his planting masses to the best possible end. Nothing but observation and experience can tell him these things; and nothing but practice will so familiarize him with the growing and cultural needs of his plant charges that he will instinctively know what to do for them and thus be able to apply his entire conscious effort to their proper placing and arrangement.

HAPPY MEDIUM BEST

And yet there is always the happy medium that gives consideration to both the ends desired and the processes of attaining them, a habit of mind that is easily attained. The home gardener may visualize a picture and work towards a definite garden scheme or effect while his attention is yet much absorbed by the mechanical and cultural details of garden work.

A common result of this human frailty, which tends toward lack of coordination of the cultural with the aesthetic qualities of the garden, is that the small yard becomes a plant museum rather than a garden beautiful. Attention has been given to the individual plant rather than to the effect of the plants en masse. The average yard appears spotted, with many different things calling for individual recognition. Plants are commonly planted in too great quantity and in too great variety. Attention to the picture rather than to the individual plant generally will overcome this trouble, even for those who are frankly garden amateurs.

The accompanying illustration is a graphic presentation of these facts. Plan No. 1 is an exact reproduction of a home place as laid out by the owners, excepting that it has been impossible to show on the plan all of the flowers and plants, in detail, that are actually in the ground.

In presenting the second sketch, Plan No. 2, as a landscape architect's vision of the same place, it has been assumed that all buildings must remain as already placed by the owner, and that the walks and drives must occupy the same general position and area which he has allowed them. This is probably an unnecessary assumption since such matters generally have some leeway of choice, and yet it is made because it is wished to show what a difference a little trained thought may make in the appearance of a place without in any way altering the general masses and areas or their position on the plan.

PATCHWORK AVOIDED

Plan No. 1 is quite disjointed and spotty, with little apparent cohesion or unity. It is a patchwork of odd bits, any of them of very apparent possible interest and beauty; and yet the plan does not indicate that they bear any relation to a preconceived, co-ordinated plan or that they have been placed together with a comprehensive system of design behind their arrangement. It illustrates the type of planting that is commonly seen on the small place. Such remarks are in no way personal as regards the person who has done the planting, but are given with the hope that they may assist the reader to view his planting in a big way and overcome some of the mistakes that most of us are heir to.

We should strive to create a pleasing picture. It is very apparent that the difference between the two plans is chiefly one of delineation—or shape and position of the different units. It might have been better to have had less area devoted to walks, to have changed the position of the garage, to have given the garden different arrangement; but this is not to be considered in the present case.

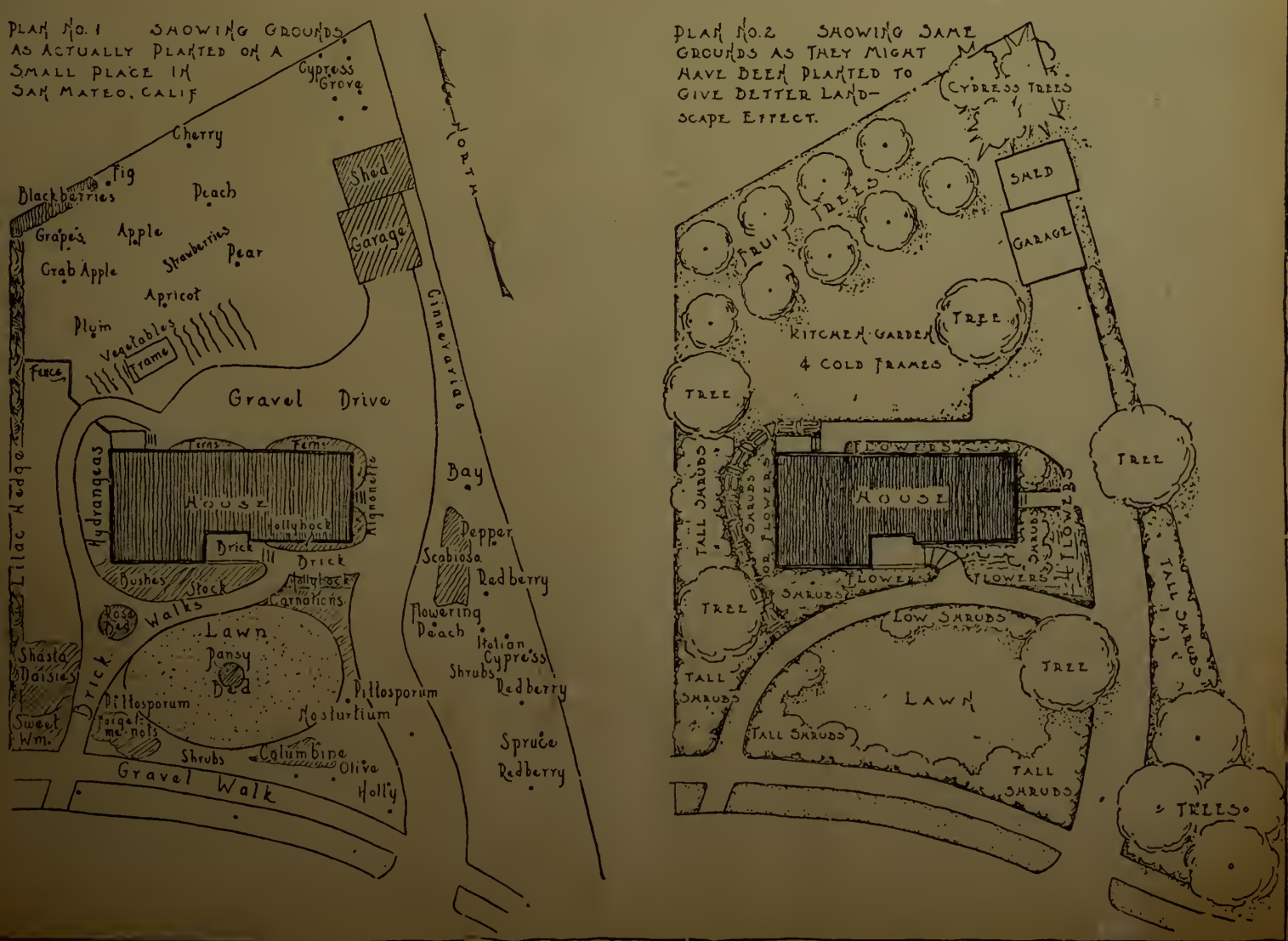
Consideration for the principles of design and thoughtfulness for the general effect rather than the specimen plant may be applied to the home place by the home owner if he will but tackle the problem in the right frame of mind.

COMPACTNESS ACHIEVED

In both of the accompanying diagrams the family fruit orchard occupies the same general position, and the kitchen gardens are relatively the same; but there is more seeming order and compactness in Plan No. 2 than in Plan No. 1.

In Plan No. 1 the driveway cuts into the center of the front yard, the only possible open area, much more obtrusively than in Plan No. 2, without rendering service that is appreciably greater. In walking from a driveway to the front door, six or eight feet farther is not a considerable distance; and yet this slight shifting in position of the drive gives a much more spacious appearance to the front yard, improves the entire aspect of the place, and eliminates a bothersome curve that, as originally laid out, has neither functional nor aesthetic merit.

At the rear of the house greater garden space is made available by the reduction in driveway surface, while sufficient driveway space still permits the backing and turning of an automobile. Here again, the advantage of being able to back a truck right up to the kitchen door seldom compensates for the loss in yard space *(Continued on Page 10)*



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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

Farmer's Viewpoint

GERMAN FARMERS PAY PENALTY.

German farmers recently have learned to their cost the folly of disregarding the welfare of consumers. Prussian producers believed they had a monopoly of food supplies and refused to sell, except at exorbitant prices. As a result, working people from the cities burned farm buildings, destroying large quantities of grain, fruits and vegetables.

To destroy food needed for starving people certainly is inexcusable, but German consumers, in a frenzy of resentment, decided that was the only way farmers could be taught a lesson.

THE PUBLIC WELFARE FIRST.

Agricultural co-operation never could have attained its present splendid success in this country without the whole-souled sympathy and support on the part of the public which it now enjoys. This good will was gained by showing how more efficient marketing methods—without increasing consumer prices—would enable farmers to make more money. Since it is generally understood that whatever helps the farmer makes the country more prosperous, public support naturally is on the side of co-operative marketing organizations.

PRODUCER-CONSUMER GOOD WILL.

The success of farm marketing organizations in the United States is due in large measure to the good will which they enjoy from all classes. Instead of following the old-time "Public be damned" policy of big business, American farmers wisely decided to take the public into their confidence and make the producer-consumer cause a common one.

Instead of fostering class hatred between town and country, modern farm organizers are working along lines that will benefit both the grower of foodstuffs and the ultimate purchaser. "More efficient distribution," is their slogan, rather than restriction of supplies.

HOW ABOUT A FARM STRIKE?

Chicago milk consumers are accusing dairymen of going on a strike, because the latter refuse to accept the lowered prices for their product which dealers offer. The farmers, however, claim they have as much right to sell their product at satisfactory prices as has the manufacturer of steel, cloth, automobiles or furniture. On the other hand, the fact that withholding milk supplies may cause babies and small children to suffer creates sentiment against the farmer.

A Solano County contributor to Orchard and Farm frankly advocates limiting agricultural production, regardless of its effect on the consumer. "Let them worry about high prices and short supplies," he suggests

WINNING FINANCIAL SUPPORT.

Obtaining adequate financial support proved the hardest problem for agricultural co-operators. Not only are bankers constitutionally conservative, but they also represent all interests of a community. Dealers in foodstuffs, transportation companies and other middlemen naturally looked askance at combinations which openly aimed at reducing distribution costs.

This feeling of suspicion, which in many cases blazed forth into open resentment, at first was reflected in an unfriendly attitude of bankers toward co-operative marketing concerns. Financiers finally were made to realize, however, that the largest and healthiest prosperity of all lines of legitimate business could be best promoted by efficient farm marketing.

What's New ?—Keeping Abreast of Agricultural Progress

Avocado Growers Organize

THE California Avocado Association, of which J. Eliot Coit, Contributing Editor of Orchard and Farm, is president, recently organized a marketing agency, the California Avocado Growers' Exchange. William H. Sallman, Chula Vista, is president of the Exchange; George B. Hodgwin, Monrovia, secretary.

The Exchange divides its territory into a dozen districts, each of which is represented by a director, elected annually on the third Friday of May.

Sheep Thrive on Raisins

THE new prepared stock feed, composed largely of cull raisins, being manufactured by the Sun Maid Raisin Company, is both economical and of high feeding value, according to Dr Wilbur Brown, Fresno County veterinarian. Dr Brown reports a sheep feeding experiment, in which 1000 ewes were fed one pound of raisins daily, in addition to alfalfa hay. The animals gave plenty of milk and showed a decided improvement in appearance, according to the veterinarian.

Ida Makes Great Record

IDA DE KOL PEARL LYON, purebred Holstein cow, born and raised at the California Junior Republic school farm, recently completed a year's production of 26,219 pounds of milk containing 1023 pounds of butterfat.

This entitles Ida to the 39th place on the honor roll of the National Holstein-Friesian Association, according to R. A. Condee dairy superintendent of the Republic. Prof. Condee recently was appointed a member of the State Board of Agriculture, in recognition of his excellent constructive work.

Tractors Displacng Horses

DURING the past six years the number of horses in the United States has decreased from 21,555,000 to 18,263,000, or 15 per cent, according to the U. S. Department of Agriculture.

The decrease in value of horses from 1913 to 1923 was $1,101,940,000, although the value of other farm animals increased $513,415,000 during the same period.

The farm price of horses decreased in the past decade from $111 per head to $64, while the value of cattle advanced from $33 to $35 in the same time. Mule prices dropped from $124 to $84.

Meantime, the number of automobiles increased from 1,253,000 in 1914, to 12,300,000 in 1923.

Butte County Boy Farmers

"THE agricultural club work of the Gridley high school is a good example of the extent to which students can be interested in farm work," comments H. E. Drobish, Butte County farm adviser.

At present 45 pupils are members of pig, poultry, orchard and nursery clubs. Eight are enrolled in a purebred sow and litter contest, having secured Duroc Jersey gilts farrowed in March. The poultry club has six members, each one having 200 White Leghorn chicks. When the birds are three to four months old the cockerels are to be sold and the pullets retained for future egg production.

Each of the fine orchard club members is planting one acre of peach trees and growing some crop between the trees to help pay the cost of the project. Twelve nursery club members are growing peach seedlings, which they expect to bud to peaches, prunes and apricots.

Disinfectant Injures Eggs

NUMEROUS complaints of bad-flavored Nulaid eggs recently have been received by San Francisco and Oakland dealers, according to R. H. McDrew, manager of the Oakland branch of the Poultry Producers of Central California, who attributes the trouble to the misuse of disinfectants in poultry houses.

"When an egg is left in a place where the air is charged with odors of creosote, lysol, carbolic acid, kerosene or similar liquids, the pores of the shell take up these odors very rapidly, making the egg unfit to enter the channels of trade," explains McDrew.

"In order to avoid this trouble, spray the interior of the poultry house late in the afternoon, after the eggs have been gathered. Remove all nesting material before spraying and do not replace until the next morning. Do not keep disinfectant containers in the same room with eggs."

Earwig Spreading Rapidly

"THE European earwig is a Statewide menace in Oregon and requires organized, large-scale repressive measures in all communities," declares H. C. Atwell, State horticultural commissioner.

Last year Portland employed fifty men to destroy this pest in 1800 city blocks, spending $18,000 for the work. For the present year $40,000 has been appropriated to fight earwigs.

Seattle has spent a quarter of a million dollars during the past two years in earwig control work. As a result of the depredations of this disgusting insect, property values in the high-class Queen Anne district suffered a serious decline

In addition to damaging fruits, flowers and vegetables, no part of a residence or any article within is immune from earwig attacks, according to Prof A. L. Lovett of the Oregon Experiment Station. In comparison, ants and cockroaches are considered blessings in disguise.

The Seventeenth Biennial Report of the Oregon State Board of Agriculture, which can be obtained upon application to the Board of Salem, contains full information regarding this pest and control methods. It is easily carried by auto from one locality to another.

Keep Out Spanish Malagas

BECAUSE of the danger of importing the Mediterranean fruit fly, further shipments of Malaga grapes into this country from Spain have been prohibited by Secretary Wallace. Three hundred fifty thousand barrels of this fruit was intended for export to the United States during the past season—November and the first two weeks of December.

In one shipment of 4337 barrels, which was refused entry, 200 larvae of the insect mentioned were found. Only one barrel in 15 was examined and only 10 per cent of the fruit in each package was subjected to scrutiny.

Improving Wornout Ranges

A RECENT Shasta County experiment in range renovation resulted in an increase of forage from one-half ton per acre to one and one-half tons. The larger yield consisted of good feed, while the lesser amount was made up of weeds and poor grass.

This result was obtained by keeping stock off the test plot during certain seasons of the year, particularly during the months when grass seed ripens. For five years this system of protective grazing was practiced. Continuous pasturing has been found to destroy the productive capacity of stock ranges.

Milk—U. S National Drink

THE establishment of milk as the national drink of the United States was recommended by the Kansas Agricultural Convention, held at Topeka in January.

"Milk certainly is worthy of the distinction of being the national American beverage," claims Dr C. W. Larson, chief of the dairy division of the U. S. Department of Agriculture.

"In addition to its high nutritive value and health-giving properties as a drink, it yields other valuable food products, including butter, cheese, ice cream, milk powder and condensed milk."

Rot Destroys Oregon Prunes

BROWN rot of prunes destroyed one-third of the 1923 Oregon crop, according to H. P. Barss, plant pathologist of the Oregon Experiment Station. This is said to be the first time that rot has injured any considerable quantity of prunes in the Northwest. Its virulence the past season is attributed to unusually humid weather during the summer.

The spores of this disease are carried over winter in such fruit as is left in the orchard after picking, especially the "mummies." Control measures consist of destroying all such fruit and spraying the trees with Bordeaux just before the blossoms open and afterwards, the exact time depending upon the weather.

Stockmen Butcher Beeves

FOR several months past Tulare cattlemen have been butchering beeves co-operatively at the rate of 50 animals per month at their Lemon Cove plant. The choicest cuts are sold at 25 cents a pound. One result of this project has been to cause retail butchers in Tulare County to lower their meat prices, according to Thomas Homer, who is prominently identified with the enterprise and will be glad to answer letters of inquiry addressed to him at Lemon Cove.

In connection with the butchering business, Tulare stockmen have constructed a cold storage plant with private lock boxes similar to the ones at Chico and Durham, described in ORCHARD and FARM last year. Members rent these boxes, one of which is large enough to hold a side of beef, and supply their table with steaks and chops as needed, also making private sales.

Revegetate Nevada Ranges

NEVADA COUNTY, through the Farm Bureau and Extension Service, is beginning a campaign for the revegetation of her stock ranges. Four series of experimental plots have been established, each consisting of four fenced plots 33 feet square and one of the same size merely staked out. They are located upon the ranches of Frank Hunt, Everett Cunningham, C. T Law and A. J Bono.

Three more series of plots are to be established in this experimental work, which is designed to cover a seven-year period and determine which are the best methods for rejuvenating cattle and sheep ranges.

In the 11 Western States there are 650,000,000 acres of land which probably never can be utilized for anything but stock pasture, according to the Farm Bureau. Of this area 228,000,000 acres is in the public domain.

Making New Cattle Feeds

A LARGE part of a million-dollar mill, soon to be erected in Los Angeles, is to be devoted to the manufacture of new cattle feeds. It is planned to utilize local roughage—such as alfalfa hay, bean, barley and oat straw—and concentrates imported from our island possessions—Hawaiian molasses and Philippine cocoanut meal. Mill sweepings and cottonseed meal also are to be used.

The Tulare Cattlemen's Association is to supply one or two carloads of cattle to be used in feeding experiments, which are to be conducted at the Los Angeles Union Stockyards to test the value of the new feeds. The test will be made by an experienced cattle feeder and supervised by the Farm Adviser office of Los Angeles County.

With alfalfa selling at $25 a ton [illegible] less than this [illegible] it is believed [illegible] to manufacture a superior feed and sell it at a [illegible] From these and similar [illegible] three pounds per day often are obtained.

POULTRY Pointers

By W. J. DRYDEN

RETARD PULLET DEVELOPMENT. J. A. Hanson, well known Corvallis, Oregon, poultryman, believes in retarding the early production of pullets at the age of three and one-half or four months. After they have reached large growth of frame and show signs of laying, he changes the ration to a "holding" one and believes by this method future production is increased.

CORNELL CHICKEN RATIONS. The laying ration recommended by the Poultry Department of Cornell University consists of the following scratch grain: 500 pounds cracked corn, 200 pounds barley, 200 pounds wheat and 100 pounds heavy oats. The mash mixture is 100 pounds each of wheat bran, wheat middlings, cornmeal, ground oats or barley and meat scraps, with three pounds of salt.

WHERE ARE ALL THE HENS? On 91,915 farms in California included in the 1920 Government census, the total number of chickens in the State was given at 10,426,648, compared to 5,665,964 in 1910. Oregon had 2,500,123 and Washington 3,547,004. The increase in California, as well as the per cent of increase, was far ahead of other Pacific Coast States.

CAGE THE DROPPING BOARDS. The question often is asked as to whether or not it is practical to cage over the entire dropping board with wire netting.

If it means anything to keep hens off the roost so they will not track dirt into nests; to prevent manure from being packed; help prevent eggs which are dropped during the night being broken; aid in culling on roosts at night; prevent spread of intestinal worms to a large extent—then it pays and is practical to cage over the entire dropping board.

TRY THIS DRY MASH. Most poultrymen feed dry mash, but it is doubtful if many of them realize the full value of a balanced formula. The poultry department of the Nebraska Agricultural College attributes the following results to feeding a dry mash composed of equal parts by weight of bran, shorts, cornmeal, ground oats, meat scraps—or good grade tankage or sour milk:

Increases egg production; improves quality of eggs; insures strong chicks; hastens maturity in young stock; insures against underfeeding; keeps fowls in good physical condition; keeps hens from becoming too fat; prevents premature molt.

PREPARE PULLET QUARTERS. Serious consideration should now be given to housing the pullets of this year's hatch. The house should be put in order and the yards prepared for the birds. The house should be cleaned, scrubbed out and sprayed with a strong disinfectant. It would do no harm to spray the building two or three times before the pullets are moved to their new quarters.

If the yards have not been cultivated this job should be attended to as soon as possible. If the soil is old and sour a good application of lime, with cultivation and weathering, will help place it in shape. Then barley or some similar crop that can start growing this time of the year should be planted.

PREVENTING LEG WEAKNESS. Numerous reports concerning leg weakness in chicks are being received. Confinement, inability to obtain certain minerals found only in the ground, lack of exercise, excessive feeding of concentrated foods and lack of fiber in the ration is responsible for most cases of leg weakness.

Certain vitamine contents not found in sufficient quantities in most commercial rations can be secured by feeding [illegible] yolk of eggs, cod liver oil, [illegible] and greens—clover, grass and [illegible].

[illegible] authorities believe that [illegible] brooding heat will also produce [illegible]ness.

[illegible] room will provide the necessary exercise but better than the [illegible] room will be the outdoors, if [illegible] will permit. If the weather is [illegible] chicks cannot be turned [illegible] be well to scatter dry earth [illegible] room.

[illegible] rations contain ex[illegible] foods. This ca[illegible] from 25 to 50 [illegible]

Cheese Assn. Will Strengthen Industry

THE California cheese interests, composed of factory owners and operators, cheese makers and others, formed a permanent organization during the Pacific Slope Dairy Show at Oakland. The purpose of the association is to promote the cheese industry of California, and as far as possible, to recommend an annual program for advancement.

Cheese making is an important branch of the great dairy industry. According to figures compiled by the United Staes Department of Agriculture, approximately 355,000,000 pounds are manufactured in this country yearly. Wisconsin is the leading cheese State, and New York is second in production. Pennsylvania, Oregon, California and Michigan rank next. California has had an average production of about 12,000,000 pounds annually for the past four years.

Probably more varieties of cheese are manufactured commercially in California than in any other State in the Union. Twenty-four different kinds were exhibited in the general educational cheese booth at the Pacific Slope Dairy Show, 1923. Spectators were amazed to find that there were so many different kinds of cheese while in reality many varieties are made which were not available for the show.

Only a relatively small amount of cheddar cheese is made in this State, and in order to meet the demands for this type, shipments are made from other States, principally Oregon, Idaho, Wisconsin and Illinois. During the past five months an average of three carloads weekly has been shipped into the San Francisco market from outside States. The figures are not available for the Los Angeles market, but the amount is probably greater, as cheddar cheese is the type most commonly used.

Why should we import so much cheese when we can make just as good quality in California? H. C. Watson, who operates factories in Modoc, Lassen and Shasta Counties, sent a cheddar cheese to the National Dairy Show at Syracuse last October and received a silver medal and sixth place with a score of 95⅜, in competition with hundreds of entries, most of which were sent from Wisconsin and New York.

More of this quality of cheese should be made in California and it is the aim of the California Cheese Association to improve the quality, not only of cheddar cheese, but of all other kinds as well.

The officers of the association for the year 1924 are as follows:

President, H. C. Watson, Alturas; First Vice President, C. O. Russel, Lake City; Second Vice President, U. S. Baer, Wasco; Secretary-Treasurer, C. A. Phillips, Davis.

Opportunities in Cheese Making

By C. L. ROADHOUSE
Head of Dairy Industry Division, University of California

THERE is a place in California agriculture for increased manufacture of cheese. The location of the factories should be in those sections of the State away from the centers of population and competition with market milk and the sweet cream market, since milk for these products brings a higher price.

The success of this development depends upon men with proper knowledge of the manufacturing processes. It is the function of the Dairy Industry Division of the University of California to train men for dairy manufacturing. The facilities for such training are unexcelled by any other institution.

Short course instruction for experieneed men and longer courses for inexperienced men are offered by the College of Agriculture with a view of encouraging a greater and better development of the cheese industry in California.

for Economical Transportation.

CHEVROLET

Will Your Family Be Happy This Spring?

A low-priced, modern automobile like the Chevrolet has become indispensable to the American family of ordinary income. Without it they are prisoners on limited range—like hobbled horses in a pasture.

The inspiring beauties of Nature, the interesting and educational features of other places and other types of people and ways of living remain things to be read about, or seen dimly in cold photographs, until you are free to GO TO THEM at your convenience and pleasure.

Suppose you have definitely decided to buy a Chevrolet this Spring.

That does not necessarily mean you are going to get it.

Anyone posted on conditions in the automobile business will tell you that thousands of families are going to be unable to get cars this Spring. That has been true almost every Spring for the last ten years, but the shortage in April, May and June, this year, is going to be more serious than ever before.

There are just two ways of making sure of getting your Chevrolet for use when the flowers and balmy breezes of Spring lure you to the country roads:

Buy it NOW, or order it NOW.

If you do not want to pay for it in full at this time, any Chevrolet dealer will arrange terms to suit your convenience, so you can *pay as you ride.*

You will be surprised to learn how easy it is to pay for a Chevrolet and to get possession and use of it.

The only way to be sure of a Chevrolet this Spring is to order it NOW.

Chevrolet Motor Company, Detroit, Michigan

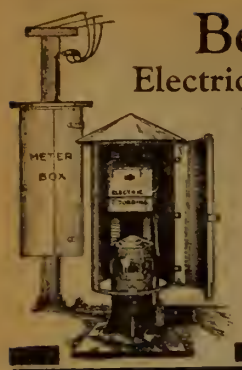
Division of General Motors Corporation

Prices f. o. b. Flint, Michigan

Superior Roadster	$490	Superior Sedan	$795
Superior Touring	495	Superior Commercial Chassis	395
Superior Utility Coupe	640	Superior Light Delivery	495
Superior 4-Pass. Coupe	725	Utility Express Truck Chassis	550

Fisher Bodies on all closed models

Five United States manufacturing plants, seven assembly plants and two Canadian plants give Chevrolet the largest production capacity in the world for high-grade cars and make possible our low prices. Dealers and Service Stations everywhere. Applications will be considered from high grade men only, for territory not adequately covered.



Bean Electric Turbine Pump

(Cover-it Type)

Complete as shown

Sizes: 6, 7, 8, 10, 12 and 15 inches

For large wells or small, the Bean Electric Turbine insures the maximum of water at the minimum of cost.

No shaft bearings below the pump head, hence no bearing troubles and a big saving of time and expense in future repairs. Motor and pump built into a single simple rugged unit. Furnished complete as shown with steel "Cover-it", Entrance Switch, and Starter Switch, all factory wired, ready to connect up to your power line. We also furnish the Bean Pump with belt pulley. Sign and send coupon.

BEAN SPRAY PUMP CO.
101 W. Julian St., SAN JOSE, CAL.

BEAN SPRAY PUMP CO.,
101 W. Julian Street, San Jose, Cal.
Please send me your new pump catalog with information on the Bean Electric Turbine.

Acres to irrigate _____

Name _____

Address _____

TIRES WITH 500 NAIL HOLES LEAK NO AIR

A new puncture-proof inner tube has been invented by a Mr. M. C. Milburn of Chicago. In actual test it was punctured 500 times without the loss of air. This wonderful new tube increases mileage from 10,000 to 12,000 miles, eliminates changing tires, and makes riding a real pleasure. It costs no more than the ordinary tube. Mr. D. O. Milburn, 331 West 47th St., Chicago, wants them introduced everywhere, and is making a special offer to agencies. Write him today.

Citrus Institute High Lights

Resume in Brief of Recent San Bernardino Meeting—Important Facts Brought Out

By J. ELIOT COIT

Formerly Professor of Citriculture, University of California; President California Avocado Assn.; Contributing Editor ORCHARD and FARM.

A VERY high-class program, bringing out as usual much valuable information, featured the 1924 Citrus Institute, held at San Bernardino in connection with the National Orange Show.

DR. J. ELIOT COIT

Aside from confusion resulting from the necessity of moving to a larger hall to accommodate the crowd, the meeting was a great success.

SIX SUCCESS ESSENTIALS.

W. R. Schoonover, citrus extension specialist, spoke on "Getting Down to Brass Track on Production Problems." He stated the two chief difficulties in the way of successful and businesslike orchard management are too much proxy farming and the idea too commonly held that citriculture is very highly complicated.

Within recent years there has been much specialization in orchard operations. Some growers employ the association crew to do the picking and another crew to fumigate; a commercial sprayer does the spraying, and in like manner the pruning, tree surgery, ant control and other operations are turned over to specialists.

This is all right in a way, but the grower must not acquire the feeling that in paying for such work he has avoided the responsibility for proper performance.

He cannot wash his hands of responsibility and expect success. He must personally look after the work and check up on methods and costs. The grower who actually works with such crews gets best results.

The six fundamentals for success in the opinion of Mr. Schoonover are:

(1) Genetically sound trees; that is, well selected root-stock and good parentage of bud wood. No matter what is done, if the trees are not of the kind which bear good fruit, there can be no good fruit.

(2) Efficient disease control; that is, prevention of such trunk and root troubles as scaly-bark, gum disease, shell-bark and root-rot. It is estimated the average production of citrus orchards of California is reduced 10 per cent by preventable trunk and root diseases.

(3) Insect pest and gopher control. Give personal attention to fumigation, spraying and gopher trapping.

(4) Protection from extremes of weather, such as frosts and winds by orchard heating and windbreaks.

(5) More careful fertilization. More skilfull buying and the reduction of present waste of money due to purchase of unnecessary materials.

(6) Proper control of soil moisture. Schoonover considers this the most important one of the six fundamentals.

Perhaps there is as much loss from the use of too much water as too little, and Schoonover urged his hearers not to get panicky in the face of the coming water shortage and overirrigate the heavier soils which do not have good sub-drainage.

Pruning and cultivation are incidental rather than fundamental and neglect or inefficiency in connection with either of these operations is of minor importance as compared with the others.

CITRUS ON A BUSINESS BASIS.

Robert W. Hodgson, farm Adviser of Los Angeles County, emphasized the responsibility of the individual grower in the present crisis. On account of the combination of expensive labor and supplies coupled with frosts, winds, small sizes, low markets and increased competition with other foods for a place in the nation's menu, the average citrus grower is not now making any money, and some well above the average are not making very much.

The situation was reviewed as regards yields, costs, quality of fruit and distribution and marketing.

The conclusion was that methods of disposition of citrus fruits were excellent and could not be greatly improved. Quality may be improved somewhat in various ways, but this will take a long time.

The main trouble is low yields and high per acre costs. It requires at least 200 packed boxes per acre to pay expenses whereas the average yield is less than 100 boxes. This means that many groves are operated under conditions where expenses are too great, yet fruit produced at a loss helps to swell the volume which floods the market.

The average yield can be doubled by the use of more nitrogen, together with better irrigation and pest control. This would not be advisable, however, because a doubling of the supply would embarrass the market and in most cases the expense of doubling the crop would be prohibitve.

The procedure suggested was to analyze each grove; figure production costs on a basis of agricultural value of laod rather tban subdivision value. Where costs are too high abandon the trees. Where they are reasonable and general conditions are favorable make a careful orchard analysis according to methods described in California Experiment Station Circular 266, and rigorously eliminate all unecessary expenses.

CITRUS SURVEY REVIEWED.

Dr. H. J. Webber reviewed the results of a citrus orchard survey carried out by Prof. Vail. A large number of selected groves of the better class were studied in each of three climatic zones. Coast, intermediate (foothill) and hot interior. The complete data will appear in a printed bulletin some time during the year.

It was found—contrary to general belief that citrus trees wear out with age—the largest crops were reported from the oldest groves.

It was found that 350 pounds of actual nitrogen per acre produced maximum yields, while 300 pounds per acre for large trees was the most economical amount. This includes what is gained by a cover crop.

Cover crops showed less value where much manure is used. A good cover crop is the equivalent of about five tons of manure, which runs 50 per cent organic matter.

Irrigation water applied varied from 14 acre inches near the coast to 26 acre inches in the Interior. In many groves near the coast yields are reduced by excessive use of water, while in the interior the largest yields were in the groves which received most water.

The best interval between irrigations was found to be 40 days near coast, 30 days in intermediate districts, and 20 days in the interior.

In figuring out the relative returns per acre, the index figures were for coast 146, intermediate 93, and interior 9[illegible]. On the other hand when returns were figured on a basis of net income on actual investment the situation was reversed the highest return being made in the interior. This was the same for both oranges and lemons.

MORE ADVERTISING NECESSARY.

Carlyle Thorpe, general manager of the California Walnut Growers' Association, who is also a grower of lemons, gave a masterly address on present day marketing problems. He thought it a mistake for California co-operatives to overemphasize the fact that selling costs of such co-operatives in the past have been very low. No doubt it soon will be necessary to increase selling costs, in order to pay for much greater advertising expense.

The population of this country is increasing at the rate of 1½ per cent a year, while the production of California fruits and nuts is increasing 10 per cent a year. This means that California growers must persuade the American public to increase its consumption of fruits 8½ per cent a year right along, year after year. This can be done only by extensive advertising. Instead of spending seven cents a box in advertising lemons, we must be ready to spend fifteen cents a box if it requires that much to move the crop. Even at that the selling cost still will be far below the cost of selling breakfast foods, canned beans, soups and other foods of that character.

Wonderful Aid to Cows At Calving Time

You need not dread calving—once you learn how to help your cows through this dangerous period. Serious disorders—often of a permanent nature—can be avoided by seeing that the cow's genital and digestive organs are in top notch health before calf birth.

Thousands of dairymen write us of the splendid results of feeding Kow-Kare two or three weeks before and two weeks after calving. L. A. Richardson, Marine, Ill., writes: "I gave Kow-Kare tu every cow, commencing one month before calving time and continuing one month afterward. It has also been a great guard against a tendency to abort when given during pregnancy. I have three dairymen on my farms and we never lose a calf or have a sick cow."

G. E. Moison, Clam Falls, Wis., says: "I find Kow-Kare to be one of the best things I can find to give my cows before calving. They are never troubled with retained afterbirth and the calves never have scours, when Kow-Kare is given."

J. E. Liberte, Newington, N. H., writes: "Am using my first box of Kow-Kare and find it is doing good work. A cow dropped her calf three weeks ago and didn't give four quarts of milk a day; she is now giving ten and one-half quarts."

Kow-Kare has medicinal properties that stimulate and strengthen the genital and digestive organs—the seat of nearly all cow diseases. It is a reliable remedy for Barrenness, Abortion, Retained Afterbirth, Scours, Bunches, Milk Fever, Lost Appetite and a sure aid in increasing the milk yield of healthy cows.

You can realize greater profits from dairying by the use of Kow-Kare. Send for our free book, "The Home Cow Doctor." It will help you to greater dairy success. You can buy Kow-Kare in $1.25 and 65c packages from your feed dealer, general store or druggist.

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Morse's Seeds

It only takes a little seed and you want that little good!

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Cutworms Hurt Buds

THERE are a number of species of cutworms, some of which occasionally acquire the habit of attacking our fruit trees. The species that have this habit are known as climbing cutworms to distinguish them from those species which attack plants just below or at the ground line.

The climbing species is apt to occur where new land has been cleared prior to the planting of trees and seldom do they continue to be a menace year after year. Their work is always done at night as in the case of other cutworms, hence their presence is not suspected until hollowed out buds are seen on the young trees in the early spring.

The most severe injury is almost sure to occur when soil is light, and little trouble may be expected on heavier soils of the clay types. During the day cutworms lie just beneath the surface of the soil and where the climbing species are present in the orchard the larvae may be discovered by scraping away the soil to a slight depth near the trunk of the infested tree.

The larva is a smooth, gray-colored creature (or worm as it is commonly called) which lies in a curled position and "plays possum" when disturbed. Where only a few trees are infested it may be practical to control the insect by locating and killing the larvae in the soil, but a far more practical way is to band the trees with cotton batting. A piece of cotton about three inches wide is placed about the trunk and tied near the lower margin. The top portion then is pulled downward so that the worms when they attempt to crawl up the trunk are unable to pass over or penetrate the belt of cotton. GEORGE P. WELDON.

Alameda Specialties

AMONG Alameda County agricultural opportunities listed recently by Assistant Farm Adviser Hammond are walnut growing and the production of truck crops.

"The Livermore Valley," said Hammond, "has a large area that seems ideally suited to walnut growing. Irrigation projects now under way, as well as successful pumping plants, indicate the availability of an abundance of water. The deep, alluvial soil with its gravelly loam beneath, seems well adapted to the planting of trees.

"In the more closely settled districts, as in in the vicinity of Hayward there appears to be an unusual opportunity to make money in the production of specialties, such as ketchup tomatoes, pickling onions and early green vegetables.

"We have found that pickling onions are shipped from Chicago to pickers in the Bay District, and it seems logical that this demand should be met with a home product."

Important to Clean Trays

THE importance of cleaning fruit trays is emphasized by leading authorities and careful growers. Especially is this necessary where dehydrators are used. Arthur Swall, Tulare County prune and peach grower, who dehydrated last season for the first time states that next year he will have trays soaked and washed between pickings and make a special effort to keep them in the most sanitary condition. He believes the additional expense will be well warranted.

Earn Big Pay for Life!

Be an Auto Expert! Insure Your Future Success!

Steady Demand for Trained Auto Men—$40 to $125 a Week!

TRAIN yourself now to earn big pay for life. Don't be like the other men who are "dreaming" of the future, who are hoping for the prosperous "tomorrow" that never comes, who postpone from day to day, from week to week, from month to month, the great day when they are going to take the "big step" and forge ahead to success . . . and on they go through life, "dreaming," "postponing," talking "tomorrow" . . . wasting the best years of their life working at odd jobs for small pay . . . no future, little hope, and on and on they struggle until it's too late . . . old age overtakes them, and they still are men without a trade . . . failures!

Be an Auto Expert!

Now is the time for you to win success. And you can do it in a hurry in the automobile business. The opportunity is here—and the coupon in this announcement will bring you free of charge a big, 84-page, illustrated catalog that tells how you can become an auto expert after a few short weeks of training. You'll be a trained man. You'll have the knowledge and the skill that will always win for you the big-pay jobs. You'll always be in demand. You'll be sure of the future, sure of success, sure of the money that will buy the better things of life for you and yours.

Big-Pay Jobs Open Now!

The auto business is the greatest business in the world. Think how the industry has grown. Why, in California alone there are nearly a million and a half cars. Just imagine the great volume of business created by this enormous fleet of autos for the garages, service stations, tire repair shops, supply houses, accessory stores, etc. No wonder hundreds of jobs are open at big pay for trained auto-men; no wonder men leave other work to earn money faster in the auto business.

He Made His Dream Come True

Wright D. Fernley of Bountiful, Utah, writes: "I have been talking things over with Mother tonight and thinking of the two short years ago before I attended your school. I well remember how I used to dream of earning 75c or $1 an hour and of paying an income tax, and now all my dreams have come true.

". . . In a few short months you started me on the upward trail. I have not only increased my earnings 100 per cent, but have a fine vocation and am absolutely unafraid of being out of employment.

"I certainly found your school a 'Friend in Need.'"

Started at $5; Now Earns $10 a day

M. R. Inez of Oakland, Calif., in a letter, says: "I have been very neglectful in writing you since leaving your school, but I can truthfully say that I have been very prosperous in my trade and have been employed here in the shipbuilding works as a first-class mechanic.

"I started at $5 a day, but they soon advanced me to first-class machinist at $1 an hour, and we work 10 hours a day.

"I am very glad to recommend my friend, Mr. Yalao, to your school, and he will start with you soon."

R. W. Kuendig, 4174-A So. Western Ave., Los Angeles, Cal., writes: "It is a great pleasure to me in writing this letter to you. I thank you very much for your kindness for the sending of your paper, the 'Spark Plug.'

"I am a great believer in the work of the National Automotive and I always wanted to thank you, your splendid instructors, for what they did for me.

"As you know, I came from a foreign country, from Switzerland, and I had a hard time in understanding the English language, but your instructors have such a wonderful way of teaching that a ten-year-old child could grasp, could understand it.

"I started in your school as a farmer, after six months I left your school with a foundation for the electrical line. Today I see a wonderful opportunity for success as an electrician."

National Guarantees to Qualify You as an Auto Expert

No matter if you have had no experience, no matter if your education is limited, YOU can be a trained auto man and earn big pay. It's the National practical system of shop training, perfected after 19 years, that makes you an expert. Expert mechanic instructors show you every detail of auto repair work, auto construction, electrical ignition, vulcanizing, battery work, lathe work, tire repairing—you learn everything about autos, and learn it right at National.

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You get your valuable training experience right on the automobiles. Imagine yourself doing a big overhaul job on a Packard, adjusting the ignition system on a Cadillac, or timing a Ford. This is just a small part of the regular National training—the thorough, actual, practical work that fits you to be an auto expert. Learn more about the special advantages of National training—read the complete story in the free catalog.

Earn Room and Board while Learning

National does everything possible to cut down your expenses while you are training. We furnish you with a job that will earn living expenses while you learn. There are no books to buy; no tools to buy; no extras. This cuts the cost to just the low tuition fee.

Mail Coupon for Big, 84-Page Illustrated Auto Catalog

Tear off the coupon now, and mail it today. Get the big, 84-page illustrated auto catalog just filled with auto facts. Tells why any man of any age can learn at National. How National Special Employment Service finds your job for you. Send for this wonderful FREE catalog now—today. Mail the coupon.

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LOS ANGELES ESTABLISHED 1905

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Dept. 315, 4004 So. Figueroa St.,
Los Angeles, Calif.

Please send me absolutely free your big 84-page illustrated auto catalog, which will take me on a picture trip through National Automotive School.

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Address ORCHARD and FARM, Broadway at Eleventh, Los Angeles.

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CERTIFIED White Leghorn quality chicks from selected free-range, heavy-laying, utility hens mated to double pedigree cockerels with authentic trapnest record. Our breeding flocks are inspected and accredited by the Sonoma County Farm Bureau. Safe arrival and full count of live, vigorous chicks guaranteed. Accredited "AA" grade chicks at single "A" prices. Send for catalogue and attractive spring prices. MUST HATCH INCUBATOR CO., INC., the World's Largest Electric Hatchery, 432 7th St., Petaluma, Cal.

WEBB'S WHITE LEGHORN CHICKS—You will get plenty of eggs if your chicks come from WEBB'S CACKLE FARM. 2500 chnice selected hens mated with cockerels from trapnested hens with records of 200 and better. 12 years SANTA CRUZ largest poultry breeder. Prices 15c up to Feb. 1st, 12½c from Feb. 1st to March 15th, and 10c thereafter. A. M. WEBB, 227 Parkway, Santa Cruz, Calif.

BABY CHICKS—Only the better grade at popular prices—Hanson White Leghorns, Brown and Buff Leghorns, Reds, Barred Rocks, Anconas, Black Minorcas, Blue Andalusians, White Wyandotte and Buff Orpingtons. Order early. Free folder. McDONALD POULTRY RANCH AND HATCHERY, Route 1, Box 246, San Jose, Calif.

BETTER BABY CHICKS from high grade stock. White Leghorns from excellent matings including Hanson and Tancred strains. Also R. I. Reds and Barred Rocks every Tuesday. Anconas, Black Minorcas, and White Rocks in season. Write the SANTA CLARA VALLEY HATCHERY, 1049 Lincoln ave., San Jose, Calif.

PULLETS! PULLETS! Large heavy type. White Leghorn Pullets hatched by Bolting's Poultry Farm, from Trapneated, pedigreed, proven producers. Booking orders now. Eight weks old February and April hatch. 80 cents each, any amount. MRS. H. L. GILLESPIE, Tres Pinos, Calif.

PULLETS PULLETS
White Leghorn Pullets, hatched from trapnested producers. Booking orders now. Eight weeks old, Feb., Mar. and April hatch 85c each; any amount. MR. A. J. SCHAFER, Broadmoor White Leghorn Pullet Farm, Van Nuys, California.

PETALUMA HATCHERY—Established 1902 by L. W. Clark. Accredited by Sonoma County Farm Bureau. White Leghorn chicks every day. Guaranteed safe arrival and full count. Free circular. L. W. CLARK, 615 Main St., Petalnma, Calif.

CERTIFIED CHICKS—White Leghorns from guaranteed two-year-old hens, mated to Hollywood, Hanson and Tancred males of high trapneated record. Write us for descriptive catalogue. ORLAND HATCHERY, Orland, Glenn Co., Calif.

OAK KNOLL POULTRY RANCH—Baby chix from our pure-blood 2 to 4-year-old W. L. hens. Cockerels from Hanson's trapnested 250-egg stock. 13 years' experience in breeding and hatching. Prices are reasonable. T. E. BLAKE, Santa Cruz, Calif.

THE WORLD FAMED FOWL—Russian Orloff and Hale Sacredo Turkeys. Booking orders now for hatching eggs. Circulars FREE. Only breeder of GENUINE stock in America. GEO. SCHAEFER, MENLO PARK, CALIFORNIA.

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PEDIGREED S. C. W. Leghorn Baby Chicks and hatching eggs. Our large selected hens are matched to Hanson's high pedigreed cockerels. Prices reasonable. DINIC HATCHERY, Petaluma, Calif.

HANSON'S PEDIGREED S. C. W. Leghorns WORLD'S RECORD Contest Laying Strain. Over 210 eggs flock average for 6 years. Send for interesting Catalogue. J. A. HANSON, Corvallis, Oregon.

BUFF ORPINGTONS and R. I. Red Eggs, $2.50 and $5. Best prize stock Pacific Coast, trapneated since 1910. Pullets reasonable. G. A. KREISS, 35 W. Poplar Ave., San Mateo.

WHITE PLYMOUTH ROCK, and White Leghorn BABY CHICKS, Hatching Eggs and Breeding Stock. High quality, low prices. PURE BREED HATCHERY, Box 59, R. 1, San Mateo, Calif.

TRAPNESTED REDS—Bred to lay; exhibition quality breeding stock from 305-egg male. Hatching eggs, baby chicks. Circular free. T. S. CALDWELL, 3330M West Broadway, Glendale, Calif.

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OUR 1924 CHICKS—Prices. Quality—Will delight new and regular customers alike. Capacity 200,000. White Brown, Buff Leghorns, Anconas, Reds, Barred, White Rocks; Minorcas, Wyandottes, Brahmas, Andalusians, Orpingtons. From some of world's greatest layers, reasonable. Reduced booked ahead. Nearly half-booked for most Winter, Spring weeks. They prove profitable. "Never saw such size, vigor, rapid growth, egg-yield." Write for proof. PROFITABLE POULTRY, 13 North Fair Oaks, Pasadena, Cal.

ORDER NOW—White Leghorn baby chicks from purebred stock, Ferris strain. Only pedigreed cockerels of 228 to 301 egg records used. Also R. I. Reds; dark, large, heavy layers; make profitable broilers. Write for attractive prices on large or small orders. Satisfaction guaranteed. Anderson's Hatchery and Poultry Farm, Modesto, Calif.

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CERTIFIED BABY CHICKS from inspected flocks. All hens have undergone rigid inspection; mated with males having authentic trapnest records of at least 200 eggs on the side of both parents. Certified by Alameda County Poultry Breeders' Assn. Now booking orders for fall and spring deliv. Utility prices. Chanticleer Elec. Hatch., Inc., Hayward, Cal.

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WHITE LEGHORN BABY CHIX of unusual value, from especially well culled hens mated with full pedigreed males. Prices per 100: March, $14; April, $12.50; May and June, $12. 100 per cent live, strong chix guaranteed. We are accredited by the Sonoma County Farm Bureau. THE PIONEER HATCHERY, 476 6th St., Petaluma, Calif.

BARRED ROCK CHICKS from prize winning stock. Our males are J. E. Peck's and purebred Aristocrats, world famous chicks. $20 a hundred. Hatching eggs, $2.00 for 15, postpaid. MRS. H. THAMS, R. R. 1, Box 27, Imperial, Calif.

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HIGH-GRADE CHICKS from selected Hoganized stock at reasonable prices. White, Brown, Buff Leghorns, Rhode Island Reds, Barred Rocks, Anconas and Black Minorcas. Union District Hatchery, Los Gatos, Calif.

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PARTRIDGE WYANDOTTE EGGS for hatching, 10 cents each. MRS. J. L. DUNN, Valley Home, Calif.

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HAZARD & MILLER—Herman Miller formerly eight years member examining corps, U. S. Patent Office. Hazard's Book on Patents free. CENTRAL BLDG., Sixth and Main, Los Angeles, Calif.

NURSERY TREES AND PLANTS

AVOCADO TREES FOR SALE—Lyon, Prince, Los Angeles, Dickey A, Dandelyon, Fuerte, Puebla, Ganter, etc. I keep all standard sorts.
Lyon, upright grower, early bearer; large, hard-shell fruit, highest in official analytical test—oil 26.89%, protein 4.37%, seed 9.7%. The Lyon grows upright and can be planted from 10 to 12 feet apart each way, from 200 to 400 trees per acre.
Prince, the only hard-shell fruit which ripens in October, November and December. "Prince of the Holidays"; excellent shipper, rich flavor, no fiber and small seed. Dickey A, richest flavor and smallest seed. Fuerte and Puebla, both leather-skin sorts; quite cold-resistant. Ganter, thin-skin, fell fruiting; most cold-resistant sort.
Visitors welcome on week days only.
A. R. RIDEOUT,
Rideout Heights, Whittier, Calif.

BEFORE YOU BUY: Get our prices on fruit trees, grapevines, both domestic rooted and grafted on resistant root, berry plants, etc. We will save you money in addition to supplying you with fully guaranteed stock. Write us list of your wants and request price list. Wholesale and retail. J. F. MILLER & SONS, Healdsburg, Calif.

ALFALFA SEED FOR SALE
Hairy Peruvian, Smooth Peruvian or Common, new crop, high purity and germination. Write, wire or phone for prices and samples. E. F. SANGUINETTI, Yuma, Ariz. Established 1888.

FILBERT NUTS EASILY GROWN from layer plants. Best varieties. 5 $2.50, 10 $5, $25, $8.75, all postpaid. Pecans, Walnuts, catalog. C. E. PARSONS, Felix Gillet Nursery, Nevada City, California.

TREES, PLANTS, SHRUBS, guaranteed, direct from grower. Lowest prices. New Dr. Worcester hardy peach and Ohio beauty apple. Planting book FREE. WOODBAWN NURSERIES, 937 Garson Ave., Rochester, N. Y.

Cory's Thornless Blackberries. For good year-old plants write Wm. Mortenson, Lodi, Cal.

BULBS AND SEEDS

BURBANK SEEDS are standards the world over. The wonderful new Asparagus "Combustion," "Sunshine" and "Molten Fire" surpass all easily grown annual plants in their brilliant all summer color effects which have ever been produced or introduced or known during the past 2000 years. More than 100,000 people during the past summer have admired them on my grounds. Ask for Bulletin 67. Luther Burbank, Santa Rosa, Cal.

ALFALFA SEED—Original Hairy Peruvian. When writing state amount wanted. LEO TURNER, Yuma, Arizona. 23 years on Yuma Valley Farms.

GLADIOLUS mixed, large 20, $1 blooming size, 40, $1.00, planting stock, 100, $1.00 bulblets, 1000, $1.00. Price list. C. O. JOHNSON, Salinas, Calif.

FARM LAND FOR SALE

FOR SALE—
One of the nicest homes in Northern California, consisting of 27 acres of the finest soil that lies outdoors, with plenty of gravity water for irrigation, a nice 7-room house, with fireplace and two bath rooms, water system, septic tank, barn, etc. A real home, on a paved road, one mile from town, that will soon double or treble in value. Will sell all in one piece or will sell parts to suit purchasers. F. C. FRANKLIN, Durham, Cal.

OUR BACK-TO-LAND PLAN—We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land, deep, rich, tried soil; complete irrigation with cheap water, thorough drainage, rail, water and highway transportation. Write owners, SUTTER BASIN COMPANY, California Fruit Bldg., Sacramento, Calif.

POULTRY and BERRY FARMING in sunny California. In the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, California.

FARMS WANTED

CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 867 Wilkinson Bldg., Omaha, Neb.

FARM WANTED—Immediately, from owner. Send particulars. MRS. ROBERTS, Box 83, Roodhouse, Ill.

HELP WANTED—Instruction

EARN $110 to $250 monthly, expenses paid as Railway Traffic Inspector. Position guaranteed after completion of 3 months' home study course or money refunded. Excellent opportunities. Write for Free Booklet G-91, Stand. Business Training Inst., Buffalo, N. Y.

WANTED—Women, girls. Learn gown making at home. Many openings, $35 week. Learn while earning. Sample lessons free. Write immediately FRANKLIN INSTITUTE, Dept. H-586, Rochester, N. Y.

LIVESTOCK—Sheep, Goats

PUREBRED TOGGENBURGS from recently imported stock. Heavy milkers. Raised under ideal conditions. Sure to please. CANYON GOAT RANCH, Redlands, California.

FARM TRACTORS, MACHINERY

NEW and rebuilt implements at special prices. Call and see them. ARNOTT & CO., 114 S. Los Angeles St., Los Angeles.

Feed Shortage Risk

TALK with any stockman in the Sacramento Valley, who gives the business serious thought and he will tell you that the feed situation is one of the most—if not the most—important things to be considered.

"Just how would you be fixed if there was a long dry spell some winter?"

Asked this question, the average stockman would probably say:

"Let us hope it never comes."

But it is here right now and a great many wonder why they have not provided the hay and the feed yard they have talked about so many times, but always stopped thinking about it when the big grass came.

The truth of the matter is that nature is too good to the Sacramento Valley. Most years there is enough feed every month in the twelve. In most years there is not much need for shelter. True the few who feed sheds to lamb in always get a higher per cent of lambs but ordinarily the one who lambs in the open comes out all right.

To have feed and a place for feeding is strictly an insurance proposition, a provision against years like this one—and periods of feed shortage of less duration that come along occasionally. I often have talked with Zeibe Simpson of Orland—one of the best stockmen in northern California—about it.

"Every man who runs sheep or cattle in this part of the country should have plenty of shed room and miles of corrals ready to use in a feed storm," he says, "and lots of hay and some grain on hand all the time. On almost every stock range there is some bottom land that will raise enough to a couple of silos full of corn. It would be a great help in a year like the grass does not grow as we always hope it will. The trouble with us all is that we forget too easily."

If there are early fall rains, before the ground gets too cold there is good feed in the Sacramento Valley in November. Sometimes by that time fox tail and burr clover and alfalfa and other native grasses are a foot high or more. Big, lush, wonderful feed.

On January 20 this year some of these same fields and ranges were bare. The seed of all of these grasses is there—all that is required to make the feed is the moisture and warmth.

And foxtail which becomes such a pest when it matures in the spring, makes splendid winter feed if it has any kind of a chance at all.

The loss this year from lack of feed is the penalty one pays for living in a country where nature is too good. Almost everywhere else feed has to be put up and fed to stock during a part of the year—sometimes during five, six or even seven months. People stay in the business in those less favored sections.

The tendency of semi-tropical conditions is to make careless, happy-go-lucky people—not only as regards feed for live stock but almost everything else. We need constant infusions of settlers from cold countries apparently to counteract the effects of a mild climate.

This matter of feed insurance is very important, one in which bankers as well as stockmen are vitally interested. Let us hope that the experience of this season will result in preparations being made to guard against similar loss forever in the future.—W. S. GUILFORD.

Big Oregon Wheat Yields

FEDERATION wheat yielded 58 bushels per acre the past season on G. S. Limm's four-acre field in Malheur County, Oregon, the past season.

A. A. Guthridge of Ontario threshed 68 bushels of wheat per acre from 28 acres, while E. M. Gregg reports 60 bushels per acre from acres. The latter crop was sold for 80 cents per bushel—$51.60 per acre.

TOBACCO FOR SALE

LEAF TOBACCO—Chewing, five pounds $1.75, ten, $3.00; smoking, five pounds $1.25, ten, $2.00; pipe and rolls free. Pay when received. CO-OPERATIVE FARMERS, Paducah, Kentucky.

RABBITS AND PIGEONS

PIGEONS—Selected Silver King squabs for sale. JAS. A. AVERY, Napa, Calif., R. R. 1, 704.

California White Leghorn Breeding Farms

SUPERIOR ENGLISH LEGHORNS, INTERNATIONALLY KNOWN

THE WORLD'S BEST

Write for mating list on pedigree chix and hatching eggs. All chix sold for February. One-half our output for March and April sold. Hatching eggs now for sale from records up to 318 eggs records.

ECKMAN & MILLIGAN, Lankershim, Cal.

Johnson's Big Peaches

(Continued from Page 2)

[illegible] showing, however, having yielded [illegible] year.

WILL PLANT PERSIMMONS

[illegible] intends to remove the apri[cots as] they deteriorate and plant [Ja]pan persimmons, which he believes [from] his experience with a few trees) [will] be even more profitable than [pea]ches.

[Th]is fruit grower had a lot to learn [when] he took over his present ranch [sev]en years ago. He came to Califor[nia] from Chicago and was without farm [exp]erience.

"At first," he relates, smilingly, "I [tri]ed to do everything that everybody [tol]d me to. But after a time I reached [the] conclusion that I knew as much [abou]t fruit growing as some of my ad[vise]rs, and so I carried out my own [ide]as thereafter."

[An a]ctive member of the Farm Bu[rea]u, Johnson co-operates with Farm [Adv]isers France and Wildermuth by [carry]ing on demonstration projects.

[H]e is a believer in long pruning, and [h]as all his trees wire-braced, using no [prop]s.

[He s]ubsoils every year—once down [the c]enter of the rows—hiring the work [done] as he does not maintain a trac[to]r of his own.

Johnson irrigates in five furrows, so [as t]o spread out the water and get it [clo]se to the trees, and uses very small [st]reams which are allowed to run for [4]8 hours.

DOES OWN CULTIVATING

As soon as the soil is just right, he [cu]ltivates with a spring-tooth harrow, [u]sing one horse to work close to the [tr]ees and turning in a double figure-[ei]ght. "In this way," he explains, "I do [a] thorough job and yet do not injure [th]e trunks or roots."

Johnson although no longer a young [ma]n, does all this work personally, as [h]e does not trust hired help to irrigate [a]nd cultivate.

"I reached the conclusion long ago," [he] points out, "that if I were going to [m]ake a success of this business, I would [ha]ve to hold down the size of my enter[pri]se so that it would be strictly a fam[ily] proposition, except at harvest time. [P]resent-day labor is too expensive and [t]oo careless for intensive production of [qu]ality fruit for a special trade such as [m]ine."

A description of Johnson's methods [woul]d not be complete without mention [of s]praying. Curly-leaf was a serious [pr]oblem for a time and January spray[in]g failed to cure the trouble. Now he [a]pplies lime-sulfur just as the blossoms [b]egin to show, and the difficulty has [b]een overcome.

"Producing a big crop of quality fruit [ev]ery year is easy in this locality, pro[vi]ded the grower overlooks nothing that [wi]ll contribute to the desired end," is [th]e way this San Diego County rancher [su]mmarizes his system.

"But," he adds, "this means study, [ha]rd work and close application to de[ta]il. The marketing problem grows less [se]rious as production methods are im[pr]oved, for it is only low-grade fruit [th]at is a drug on the market. The bet[te]r stuff always can be sold at a profit.

MUST TAKE BIT IN TEETH

"However, it is up to the producer [to be] independent. We farmers have [be]en too long content to work hard for [wha]tever the buyers cared to offer in [the w]ay of reward. If we are to profit [by ou]r labor in comparison with other [line]s we must set our mark higher and [make the con]sumers come to us! Larger [gro]wers [ma]y best do this through co-[oper]ative marketing associations, per[haps]. Another method is the one I am [follow]ing."

[Th]e reader will immediately sense [that] there is something behind John[son's] attractive cash income besides [hi]ghly efficient production and direct [mar]keting.

[It is] salesmanship—and this includes [[illegible]] more than a fair deal to every [custo]mer so that each will not only [come a]gain but will send his friends as [well].

[[illegible]] to the number of visitors is [[illegible]] annually, while Johnson's [[illegible]]ing list, already numbering [m]ore than 400 names, becomes every [yea]r larger—and more profitable.

Injurious Cover Crops

[illegible] that a cover crop should never [illegible] in non-irrigated orchard? In [illegible] would it be injurious?—A. S. M.

[illegible] pound of dry matter pro[duced] [illegible], it is estimated [illegible] to 1000 pounds of water is [taken] from the soil.

[illegible] crop then, may be injurious [in] [illegible] of drouth or in any district [wher]e there is a possibility of shortage [of wat]er in an unirrigated orchard. [illegible] generally is recom[mended] [illegible] orchards in the [illegible] is the mulch [illegible] [illegible] improved, [illegible] through [illegible] crop is [illegible]

In-Arching of Prune Trees Is Successful

TWO years ago there was revealed a root-stock weakness in the Ryan orchard, two miles east of Gilroy, which necessitated immediate action in order to prevent ultimate loss of several hundred trees.

Five-year-old French prunes, of Myrobolan stock, showed a large proportion of pinched unions, defects possibly caused by improper care of buds in the nursery, and manifested by constricted Myrobolan stocks just below the unions and weak, poorly-anchored root systems. Passage of elaborate plant foods from tops to roots was impeded, the consequent starved condition resulting in a stunting of the entire tree and often total loss by winter injury or sour-sap.

J. W. Weaver of San Jose, who previously had made a notable success of in-arching in order to change entirely from one stock to another more suitable to the soil on his ranch, was called in and put his method to work. Results at the present writing, two years later, are quite striking.

Two constructive criticisms, however, are justifiable: As commented upon by Mr. Weaver during the course of the work, many of the trees were already too far gone for best results, yet, their response in these cases is particularly interesting to the observer.

Only one graft per tree was made. Two grafts, on opposite sides, would have given better results, for, as matters stand now, every conspicuously weak tree is showing a vigorous growth on the grafted side, which, in height and color of foliage is head and shoulders superior to the weaker half. Two grafts would have equalized the success of the undertaking. Over 90 per cent of the grafts placed were successful.

Briefly, the method consists of planting a No. 2 nursery tree adjacent to the "patient" in a hole which will expose the full crown of the latter. In this case budded French prunes were used. Seedlings of a desired root-stock might be used as well. Grafting was done before earth was placed around the young root system, and at an approximate level with the surface soil.

With a heavy knife driven by a mallet an upward slash was made in the stock for a distance of two inches and including more or less wood. The result was a U-shape flap, the tip of which was trimmed so as to expose a bit of cambium on the outside as well as that on the inner cut surface.

The cion tree was then cut on a slant and split as for the common whip graft, the tongue then inserted under the flap of the stock, and the upper flap portion of the whip laid over the stock flap. The whole "sandwich" then was tacked down and thoroughly waxed. With this method three uniting surfaces are made possible. This plan is recommended as thoroughly practical in cases of weak bud unions, girdling, or necessity for changing stocks to meet soil conditions.—W. C. TESCHE, Deputy Horticultural Commissioner, Santa Clara County.

NEW YORK GRAPE COSTS

The average cost of producing a ton of grapes in the Fredonia, N. Y., district for the past six years was $30 a ton; yield, two and two-thirds tons per acre; price received, $76; profit, $109 per acre. The average cost of growing a vineyard was $85 per acre.

Mineralized Water Routs Chicken Lice

No Dusting or Spraying—Birds Delouse Themselves. Fine for Baby Chicks and All Poultry.

A recent discovery promises to revolutionize all the commonly accepted methods for keeping poultry free from lice and mites. This wonderful product keeps the poultry always lice-free without the poultry raiser doing any work. It is the simplest, easiest, surest and best method ever discovered.

Lice Tabs, which is the name of this remarkable lice remedy, is dropped in the chickens' drinking water. Taken into the system of the bird, it comes out through the oil glands, and every louse or mite leaves the body. It is guaranteed to help the hatchability of the eggs, and cannot injure the flavor of the eggs or meat; is harmless to chicks and does not affect the plumage. A few days treatment at the start and then a little added to the drinking water each month is all that is necessary.

Send No Money—just your name and address to Lice Tab Laboratories, Dept. 14, 345 S. Wabash Ave., Chicago, Ill. A card will do. So confident is the Laboratory that Lice Tabs will get rid of every louse or mite that they will send you two large double strength $1.00 packages for the price of one. When they arrive, pay postman only $1.00 and postage. Sell one to your neighbor and get yours free. If you are not absolutely satisfied after 30 days' trial, your money will be refunded. Write today before this remarkable trial offer is withdrawn.

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- ✓ 3 speed transmission
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The measure of tractor value and service

In design and performance the "Caterpillar" Tractor stands alone. In uninterrupted service and economy the "Caterpillar" Tractor has no real competitor. In usefulness and dependability the "Caterpillar" has always been the supreme tractor.

Big buyers—owners of fleets—are standardizing on "Caterpillar" equipment. This is because there is no economy, or logic, in buying less service and value than the "Caterpillar" is capable of giving you. Why should *you* do it, either?

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Hints on Planting the Small Lot

(Continued from Page 3)

and the added dust and glare of road surface. Particularly is this true of the small place

The lines of the driveway on Plan No. 2 are much smoother and more pleasing to the eye, both at the side and at the rear of the house. At the back of the house they avoid that indefiniteness and vagueness of direction, apparent in No. 1, that tend to give any place a slipshod appearance.

The same statements may be applied to the walks at the front of the house. They were originally jerky and broken in their outline Without changing their general position the "kinks have been ironed out" and their appearance much improved

In the matter of planting, the general location of beds is unaltered. The center space is retained as lawn; but the horrible pansy bed has been removed from its middle, and the rose bed has been eliminated from the walk intersection. Instead of leaving the lawn in the definite shape of a goose egg, the shrubbery has been grouped about it a bit more irregularly and would be permitted to droop over onto the lawn in its natural way.

FRAMING THE HOME

Low shrubbery is suggested for the center of the picture, with tall shrubs and trees at the sides and in the background. This is done for two reasons: First, the house is the center of the picture and the dominating object in the composition. The planting is arranged in recognition of this fact and in a way that will disclose the house rather than conceal it, enframing it in green with a foreground carpet of lawn. Second, the desire for privacy on any grounds generally suggests that the boundary plantings be sufficiently high to screen the view of a pedestrian on adjoining property, and thus give some sense of seclusion from within the home grounds.

The trees, on Plan No. 2, have been grouped with consideration for their effect on the general picture, for their provision of shade as needed, and with regard for other plantings of shrubs and flowers. They should be used with discretion, as accents of higher and broader foliage masses.

No attempt has been made to suggest a planting plan in detail. This is the last study of the landscape architect, and should also be the last for the home-builder. The determination of the different units should be made first, followed by a study of their arrangement and general size, as shown on Plan No. 2. Then, when the grounds are visualized, the planter should choose those things which will create the desired effect The individual plant should be subordinated to the mass effect, although it may be very interesting in itself; and it is more common to err by choosing too many varieties than by choosing too few.

Bolting Weak Crotches of Fruit Trees

IT IS not always possible when selecting the branches for the framework of the tree, to secure those that will result in strong crotches.

Breakage and propping to prevent breakage therefore are important matters for consideration. If in either case something can be done to eliminate these difficulties, certainly the grower should be willing to do anything within reason to accomplish his purpose.

It is an easy matter to determine which crotches are weak and which are strong if one will observe carefully the trees in his orchard, especially when the leaves are off, and perhaps there is no time better than the pruning season.

The narrower crotches are always the weaker, while wide crotches as a result of branches emanating at an angle approaching a right angle, are always the stronger. When the dangerously weak crotches are discovered by the pruners, they can be marked and treated later.

Mending of weak crotches consists in bolting just above the union of the branches forming the crotch. The farther above the crotch that the bolt conveniently can be inserted, the better. Usually three or four inches is practicable. The bolt does not need to be of large diameter; in fact, the danger of injuring the tree is far less with a small bolt

A one-quarter inch to a three-eighths inch bolt is large enough in most cases. A good washer should be placed at each end. The hole for the bolt can be made with a brace and long shank bit. Split crotches can be repaired in the same manner.

Even in extreme cases when a branch falls to the ground as a result of a crotch giving away it is practical to mend by bolting, provided the branch is not completely severed from the tree.—GEORGE P. WELDON.

Power Pointers

By WALTER H. GARDNER

SHORT MECHANICAL COURSE.

They call it a "short course" up at the University Farm, at Davis, but many a rancher will tell you that it goes a long way towards helping a man get more out of his farm machinery. Here, from May 12 to 17, are to be given practical illustrations of best methods of handling tractors and gas engines, helpful hints on the planning and construction of farm buildings and other valuable mechanical information.

W. H. GARDNER

It's not too early to plan to attend. There are at Davis 14 modern tractors loaned by manufacturers, and 15 of the latest types of stationary gas engines. This short course consists more of laboratory work in the open than class-room theory.

FERTILIZING CRUSHER WASTE.

There is a ditch that dumps dollars up in Solano County. Up on a high hill, just east of the town of Cordelia, is an old rock quarry. From the crusher and screens emerge the marketable rock and the fine dust and silt, which is wasted. This muck once was carried off through a ditch to a marsh down at the foot of the hill. Not long ago this property was re-claimed and sold as a ranch and the quarry had to search for new dumping ground.

On the other side of the hill, about a half mile distant, there lay the property of S. H. Martin of Cordelia His ranch, for the greater part a most productive one, contained 30 acres of lowland which, in its existing condition of salt water inundation, was valueless for the production of anything besides its rank growth of pickle weed.

The quarry people conceived an idea: They had too much soil, Martin did not have enough What better act could they do than present him with what they did not need? They interviewed Martin. He not only approved their idea, but was delighted with it Once an agreement was reached it remained only to find a way of connecting the quarry with the lowland True, a whole hill intervened—but what is a mere hill to a California engineer.

A ditch was dug around the hill at a grade ranging from five to seven per cent. Then a giant ten-foot grader was put to work behind a 60 horse power tractor and the construction of a dirt levee was begun. In three days' time 30 acres of lowland was completely encircled by a levee two feet and a half in height.

Now everything is ready and in a few days' time the soil-bearing stream will start on its sluggish way and the filling-in will begin. It will take from two to three years to fill the 30 acres. At the end of this time the land will be covered with free soil, made very productive by its clay content and especially good for raising such crops as tomatoes.

POOR BUYING ECONOMY.

A San Jose customer priced a furrower which was offered him at $21, delivery to be made that morning from stock. That seemed high; therefore, he went to the blacksmith shop, where he was told he could have one made for $12. "Go ahead," he told the blacksmith. "Here's where I save $9."

It took the blacksmith a day and a half to get the furrower properly put together—a day and a half in which the purchaser stood there right over him. Then the blacksmith asked for cash—the dealer would have gladly extended the usual terms. And the dealer's furrower was made from a special grade of high carbon steel.

Repair parts and accessories often do seem high in price But it is worth something to be able to get the right parts on short notice and not have to pay cash.

EFFICIENT TRACTOR LAW.

Nebraska farmers profit largely from the work of the agricultural engineering division of the University of Nebraska. At a recent meeting of the Tractor Club, Prof. L. J. Fletcher reported that over two score models of tractors have been eliminated from the Nebraska field either because of failure in complete tests or failure to appear for test after making application

As is generally known, the State of Nebraska does not allow tractors to be sold within its boundaries until they have passed successfully a scientific test at the University laboratory Certainly this law has saved the farmer a tremendous loss in experimenting with inefficient and "Gypsy" tractors.

Other benefits of this law are shown by the fact that less than 20 per cent of tractors completed tests and fulfilled all original claims in 1920 while in 1922 over 75 per cent of them made good. The tests of succeeding years also show a notable increase in the efficiency of tractor governors the speed variation from full load to no load being reduced from 17.7 per cent in 1921 to 7.85 per cent in 1923

Here in California reduced demand for tractors in the last year or two has eliminated many of the inefficient machines, but the apparent success of the Nebraska law is worth considering

MUCH COPPER CARBONATE USED

In Tulare County, the treatment of seed wheat with copper carbonate to prevent smut has been extended to 15,000 acres of wheat planted this fall, according to Farm Adviser Connor

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GENUINE Astrakhan Coatee
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Think of it! This Genuine Astrakhan Coatee only $3.98. Without a doubt the most stylish creation of the season. Everybody is wearing them. Most fashionable in Chicago and New York. Picture yourself in this charming $50 style. You must see it to appreciate the wonderful value offered at so low a price.

All Sizes 34 36 38 40 42 44 46 48 50 52 54

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Just rush your order TODAY! Send Name, Address and Size. We will ship at once by Parcel Post. Pay the mailman $3.98 and few cents postage. Try on Coatee in your own home. If not satisfied in every way return to us and we will gladly refund every cent of your money.

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All these and many other diseases are caused by poor blood or blood poisoned with uric acid or other impurities which Renascin will remove without fail. It will bring the blood into the healthy and vigorous state in which it should be. To convince you of the unfailing effects of Renascin we will mail upon request to any address

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Chicago Tailors Association
Dept. 603, Sta. C, Chicago

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The Country Community Church Has Made Good

THE town and country church has been a problem with religious leaders for the past 30 years or more.

The Community Presbyterian Church at Novato, California, is trying to solve it. Novato is a village a few miles inland on the Marin side, north of San Francisco, supported largely by the dairy and other farmers round about.

A few years ago a Presbyterian Church was there, barely existing, and just marking time. The religious leaders decided to build a new kind of church organization on the community plan, the church—to show itself interested in the religious side of the people, and also to exhibit sympathy, and helpfulness toward the civic, commercial, agricultural, social and reccreational life of all.

They found the first requisite in the sympathetic and inspirational leadership of a pastor, the Rev. Charles Christensen.

COMMUNITY CENTER PROVIDED

The next step was to build a Community House (shown in the accompanying photograph) as a center for these various activities and gatherings. The whole community life of the people finds its focus here, irrespective of race, creed or organization, the pastor of the church being the manager of the Community House.

Here meet two lodges, the Chamber of Commerce, the farmers' organizations, social groups, boys' and girls' recreational and educational organizations. Free moving pictures are shown. Helpful lectures and discussions are provided.

A few of the organizations pay a rental for the use of the building. The income meets all expenses of the house.

The community is being solidified, harmonized and vivified and is learning, that a true religious leadership is interested in every legitimate phase of life in addition to that which is specifically religious.

Such service and adaptation may prove the saving of the country church. —HENRY QUICKENDEN.

Above—View of town of Novato (Marin County), where the community church, shown below, has become a center for civic as well as religious activities.

Shallow Subsoiling

THE main thing in subsoiling is to break up the plow pan. The best method is to set the shoe to run just below the hard layer of soil.

This was proved very clearly recently on the ranch of Ed Pressier, near Lodi. He wanted lots of power and deep work. The implement dealer insisted that he give shallower stirring a trial.

In order to investigate conditions they took a shovel and cleared away seven or eight inches of mulch. They needed a bar to cut through an equal thickness of plow pan. Below that the soil was too loose to need subsoiling.

They first set the subsoiler twenty inches deep. The shoe was so much below the plow pan that it did not affect the latter, the standard merely cutting a narrow groove through the hard layer.

The standard then was raised to work about fifteen inches deep and it smashed that plow pan in a strip two feet wide. In addition to doing better work, the draft was less than when the tool was set deep.—T. F.

EARLY VEGETABLES PAY WELL

Several growers have had conspicuous success in the production of early lettuce and rhubarb in the vicinity of Hayward (Alameda County). Increased planting of truck crops is predicted for the coming year.

Is Climate Really Changing?

TODAY one hears a good deal about the change of climate which is supposed to be taking place.

And it is quite true that the deforesting of large sections of the country, which has occurred in different parts of the world has wrought a material change in the retention of the moisture that falls, as well as in vegetation. But a study of the rainfall of any section over a long period of time shows that there is no decided change in the amount of water that falls through a number of years.

The weather passes through cycles, or periods in which it varies from high to low precipitation, or from high to low temperatures. These cycles vary in length from about 10 to 12 years; in some cases to as long as 32 or 33 years, or even more.

In some of the dry farming territory in the wet part of the cycle, a prosperous agriculture is built up, only to go down later in the dry part. Examples of this kind are numerous in the semi-arid plains section of the Western States.

The continued drought in the central part of California this fall led to a study of the rainfall from the existing records. Rain records kept by the Bank of San Rafael for the past 48 years were used, and upon making a graph from them it was seen that the rainfall seemed to go through a cycle of about 10 to 12 years.

It was noted also that the second year of record was the driest year that has ever been recorded, while the two wettest years together have occurred within the last decade.

The variation in rainfall during this time has been from 19.20 inches in 1876-77, to 65.67 in 1889-90, while the average for the whole period has been 37.15 inches. A graph of the monthly average for this time shows a gradual increase in precipitation from September to January, with a gradual tapering off until June.

A study of the driest years shows that there was only one fall that had less rain, from September 1 up to January 25, than this one, and that year was 1917-18. The difference was less than an inch. The precipitation for that dry year totaled 19.51 inches, and an average of the five driest years shows a fall of 20.75 inches of rain. On this account it seems likely that we may expect to get at least 19 inches of rain for this season at San Rafael, and a proportionate amount in sections affected similarly. If we do not, it will be the driest year in 49 years.

The average of the five wettest years shows nearly three times the precipitation of the five driest, and it more nearly conforms to the normal in the time it has come.

The lesson for the farmer in this study is that no time should be lost in a dry year in getting the crop in, so that it may be able to utilize all the moisture that falls. There is no surplus stored in the ground for the late crop to use. Early planting should be the rule.—M. B. BOISSEVAIN, Marin County Farm Adviser.

Why Figs Drop Off

I have a fig tree which sheds its fruit when the latter is half grown; what is the trouble and remedy?—C. L. WALKER, San Bernardino County.

THE fig tree you have and which does not mature its fruit is probably the Smyrna variety, which must be pollinated by a little insect known as blastophaga. This variety of fig, where it is grown commercially in the State, is usually interplanted with varieties which harbor the blastophaga and which are known as caprifigs. The insects go from the caprifigs during the blooming season of the Smyrna, causing the fertilization of the latter.

Instead of planting caprifig trees, it is possible to procure fruit from same at the proper time in the spring, when they are hung in little baskets in the tree, there being about a half dozen figs used in a basket. I am sure that you could get a few of these figs, together with accurate information as to the time and manner in which they should be used, from your nearest reliable nursery.—GEO. P. WELDON.

Planting Orange Seed

Where can I obtain orange seed for growing citrus stock? How should the seeds be bedded and the seedlings budded?—HUBERT THACKER, Los Angeles County.

YOU do not say how many orange seed you want. You should use sour orange seed. If you want a large quantity for nursery planting you can get in touch with Florida dealers through the editor of the Florida Grower, Tampa. If you want only a small quantity, apply to local seedsmen.

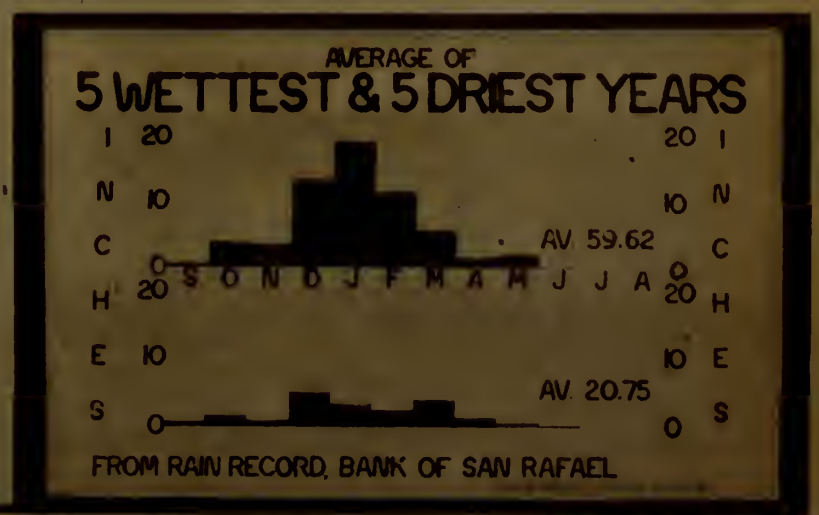
All information of this character can be obtained from Coit's "Citrus Fruits," which can be consulted at your local library or high school.—J. ELIOT COIT.

Canned Salad Popular

THE pack of mixed fruits is increasing annually, according to a prominent cannery official. This mixture, generally known as "fruit salad," is put up during the slack season by repacking from gallon cans of the various ingredients.

These large cans are opened by machinery. At one plant more than 3000 cases a day of the mixed fruits were put up during the past season.

The law now requires that such cans be labeled "fruits for salad" instead of simply "fruit salad" as in the past.



The letters "S" to "A" in above diagrams refer to the months September to August. The figures at the sides indicate the rainfall in inches. This evidence seems to confirm the cycle theory.

It doesn't cost much to feed a baby chick but—it costs a lot to lose it

The average baby chick, in the first six weeks of its life, eats about 7/10 lb. of scratch and ½ lb. of mash. That doesn't mean much, as feed goes, but it means *everything* to the chick. Because the chick is fighting for its *life*—and for your future profits.

Seasoned poultrymen will tell you that the vital factor in raising—and saving—baby chicks is this: a clean, prime feed granulated and proportioned for baby stomachs. That's why they always start their chicks going on Sperry Baby Chick Scratch.

Prime, re-cleaned seeds and cracked grains, bone meal and charcoal—everything that goes into this Scratch is watched for *cleanliness*. Moreover, it is free from waste. And, thanks to new, improved machinery, the *granulation* of Sperry Baby Chick Scratch is even better, more uniform than last year.

Give your baby chicks the right start! Give them Sperry Baby Chick Scratch! You'll find the cost of the feed as nothing compared with the chicks you save!

Sperry Baby Chick Mash speeds up growing

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ORCHARD and FARM

MARCH 16, 1924

Beef Cattle and Sheep Combination Profitable

AN hour's visit with William Briggs, senior member of the firm of Briggs & Son, Woodland Hereford breeders, should convince the most skeptical that his is a vocation requiring the highest degree of skill and business ability.

Yet many city residents apparently still class the farmer with the bewhiskered "rubes" of the comic supplement. Briggs is the type of farm owner who would make a success of any venture he attempted and who chose agriculture because he liked it and sensed its possibilities for constructive accomplishment.

Ready Sale for Purebreds

LIVESTOCK breeders who complain there is no sale for their stock may find solace in the experience of this Solano County rancher. Admitting that present cattle prices are too low, he views the situation with equanimity while selling high-priced rams, and regards the future of the cattle business with optimism.

By RAY C. GRUHLKE

This is Eulalie Velie, State Fair Grand Champion. Briggs & Son keep their animals in the pink of condition in winter on corn silage and alfalfa hay.

The homestead is beautified by trees of many varieties, and makes a most attractive appearance in its commanding position conveniently near the barns and corrals, yet far enough from them for comfort and sanitation.

Such is the subject of this little "story"—a breeder of note, who thoroughly understands his business, who will stick to it through thick and thin, and who will make Hereford history.

"We have been breeding Herefords only ten years," said Briggs, "but now we are getting into the position where we can do some real constructive work. Our ambition, and the end to which we are working, is to raise the animals that will be outstanding in the breed and make our herd notable in Hereford annals.

William Briggs & Son cultivate 280 acres of first class land near Dixon (Solano County), California. The land is irrigated with electric pumps, and alfalfa is the principal crop. They have a herd of 125 registered Herefords and 500 registered Rambouillet sheep.

Ordinarily the breeding of beef cattle is conducted on the so-called cheap land, hills and range. Briggs, however, maintains his enterprise on the best obtainable alfalfa land and is very emphatic in his statements that such land is the only kind where breeding of purebreds can be carried on profitably. In fact, he does not see how the business can be handled successfully on any other kind of land.

GOOD CONDITION ESSENTIAL

This breeder states it is absolutely necessary to have purebreds in the very best condition at all times, and they must have green feed or silage, in addition to dry hay or pasture, to keep them in the pink of condition. Buyers will not take an animal unless it is fat and sleek.

Briggs & Son raise Indian corn sown broadcast for silage, which is fed liberally all winter when there is no green pasture. The stock all get alfalfa hay in addition, but when pasture is good they get nothing else. No grain at all is fed except in fitting for show.

"I consider corn silage and alfalfa hay the ideal ration," asserts this Solano County cattleman. "Range, or dry pasture, is all right, provided they have access to green pasture or silage, but they must have succulent feeds. We plant Sudan grass in the alfalfa, and irrigate; this keeps the cattle from bloating.

Below are shown some typical yearling ewes from the Briggs Rambouillet flock. Photographed in December, while eating alfalfa hay, spread out in their winter pasture.

Above is the famous Donald Lad 1st, another State Fair champion, and a good example of the blocky type being developed on this Solano County stock farm. Briggs believes the Hereford will lead in California.

My animals are always fat and I have no trouble in making sales."

The Herefords are of Woodford and Domino breeding. The senior herd sire is Lincoln Domino, in service in their herd for four years. The new bull, Woodford 169th, was purchased together with 12 cows, at the dispersal sale of the famous Col. E. H. Taylor herd at Frankfort, Ky., last fall. These cows were bred to the famous Hereford bull, Woodford 61st, and have dropped some mighty fine looking calves, a bull calf in particular showing great promise of future worth.

A son of Woodford 61st was sold at the recent International Show at Chicago for $9400.

Sales of purebreds at the Briggs farm have been very good, notwithstanding the slump in the cattle market. "When you have good stuff, it is no trouble to sell at any time," said Mr. Briggs. "I had a car of cows that I wanted to sell recently and I put a small ad in four farm papers and within two weeks the cows were sold.

"I sold eight bulls to one man the other day, after his second trip of inspection to my ranch. He stated that although my prices were higher, he was well satisfied with the kind of stock he was getting. I have sold $8000 worth of breeding stock the past ninety days and could sell more bulls if I had them."

Practically all Hereford customers come to the ranch to buy. Briggs gets many buyers through the California Cattlemen's Association. He advertises when he has something particular to sell and obtains immediate response.

he says.

The University Farm, but 14 mil[illegible] distant, brings or sends him customers frequently. One man whom they referred to him bought a bull for $[illegible]

Practically all his Herefords are [illegible] in this State. He states there are [illegible] enough bulls produced in California to supply the demand and that 50 p[illegible]cent of the bulls sold are shipped in.

Prices are low now. Bulls that sh[illegible] bring $600 to (*Continued on Page 9*)

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
MARCH 16, 1924

Planting Effective Tree Windbreaks on the Farm

Manifold Advantages of Wall of Living Green on Windward Side of Field and Orchard—What Trees to Plant and How

By M. B. PRATT
California State Forester, Sacramento.

AGRICULTURAL development in California now has reached the stage where windbreaks are a necessity. The financial losses which wind causes to crops and the physical suffering caused to livestock when running free in pasture demand that windbreaks be established.

M. B. PRATT

Throughout the fruit growing and farming districts of our great valleys, where no protection is afforded against the heated north winds that frequently occur at harvest time, much grain is shaken from the heads and great quantities of immature fruit are threshed off the trees. Aside from this damage to crops, drying winds cause enormous losses through the evaporation of soil moisture.

The planting of trees on areas of sufficient length and proper depth serves to check rapid evaporation due to continuous dry winds, as well as reduces wind velocity. The influence of trees in breaking the force of winds is dependent upon the former's density, extent and height. Experiments showed that two rows of evergreen trees, 40 feet high and closely planted, reduced a 25-mile wind to five miles at 200 feet to leeward. It can be stated as a general rule that windbreaks will exert an appreciable influence of at least a rod for every foot in height.

The amount of evaporation due to a hot wind was determined in Switzerland where a "Foehn"—the hot wind of that country—entirely "ate up" a snow cover two and one-half feet deep in 12 hours. Windbreaks, by reducing the velocity of air currents, reduce surface evaporation from 30 to 70 per cent.

TREES REDUCE TEMPERATURE

If for nothing more than the reduction of excessive temperature, windbreaks are worth while. A mature tree releases by transpiration of its foliage about three barrels of water every 24 hours which has a decided effect in reducing the temperature of the air in its immedaite vicinity.

Windbreaks also exert a mechanical effect in fixing shifting soils which otherwise could not be cultivated to advantage. In some sections of the San Joaquin Valley giant reed grass is used for this purpose. It grows in dense hedges and is very effective where a heavy, low-growing windbreak is needed for the protection of orchard and farm lands. In the vicinity of Oxnard, high windbreaks of eucalyptus and Monterey cypress are common.

The influence of trees upon water evaporation, wind velocity and temperature is so great that it is a wonder more tree planting for crop protection, as well as shelter for man and beast, has not been done in California, especially since windbreaks can be established so easily and attain large proportions in a short time.

An effective form of windbreak, especially in Southern California, is a combination of eucalypts preferably blue gum, red gum or manna gum, on account of their resistance to frost and Monterey cypress. The eucalypts are usually planted next to the road, because there is more or less of a gutter there containing moisture, which the roots seek in preference to the soil of the orchard side. Monterey cypress is planted on the orchard side, alternating with the eucalyptus trees. To lessen the drain of the roots on the orchard soil, a subsoiler can be used that will cut out the interfering roots and allow the planting of orchard trees within a few feet of the windbreak line.

Where winter protection is not needed, deciduous trees are generally used. Lombardy poplar and cottonwood make good windbreak trees, because of their rapid growth and close foliage, and can be planted with success where the severity of the winter climate prevents the planting of eucalypts. These species, however, are comparatively short-lived and are serious soil-robbers.

The black locust is a much better tree, especially for a low windbreak, and is valuable as well for fuel and posts. In the last few years the evergreen species of tamarisk has been planted with much success in the Imperial, Coachella and Antelope Valleys, and in addition to forming a dense windbreak, has high ornamental value.

Many eucalyptus windbreaks, such as that illustrated above, have been removed because of damage to adjoining fields and orchards. In some cases, however, this objection has been overcome by use of a subsoil root cutter, drawn along the rows by means of a powerful tractor.

DIRECTIONS FOR PLANTING

Windbreaks should be long enough to protect buildings and orchards and to be thoroughly effective should not be less than 32 feet wide. Spacing of 8x8 feet is preferable, since this allows of cultivation and irrigation until the trees become thoroughly established. It also will provide for sufficient trees so that, if some should die, enough will live to make any replanting unnecessary.

After the trees have been planted they should be supported by stakes for protection against severe winds, which are liable to break or uproot them. The method of irrigation is the same as for fruit trees. Three good irrigations a year for three years, with proper attention to cultivation, should be sufficient to produce a thrifty growth.

Cultivation greatly encourages the growth of the trees. It should be shallow in order not to injure roots. Until danger of injury to the young trees is past the plantations should not be used as pasture for live stock, since animals break down and bark the trees, as well as make the ground hard and dry. Fire should be guarded against by keeping a strip ten feet wide on each side clear of inflammable material.

STATE IS GROWING TREES

The State Board of Forestry believes that windbreak planting should be encouraged in every possible way, and that trees for this purpose should be produced in large quantities at the State Nursery, to be sold at the cost of production. Quantities of Lombardy poplar, eucalyptus, black locust, honey locust and Monterey cypress now are available and other species will be propagated as the demand develops.

A list of the trees at the State Nursery and their prices will be furnished upon application to the State Forester, Sacramento. Special rates will be made for seedling stock, if larger stock is not desired.

How to Make More This Year From the Orchard

By F. W. ALLEN
Assistant Professor of Pomology, University of California

THE production of deciduous fruits is a line of agriculture from which, during the past year, some growers have received a profit; a larger number perhaps have made only expenses while not a few have sustained a loss. In making plans for the coming season, it is well to review and profit by recent experiences.

Prices and market conditions among other things, have been blamed for last year's red ink and recent statistics do show that while the tonnage of fruit produced in 1923 was greater than in 1922, yet the total value of the crop was considerably less. Is this simply a condition which must be accepted as the result of a large crop and lower prices generally or is it due at least in [illegible] to other factors which the fruit grower during the coming season may [illegible] to correct?

In an endeavor to aid in analyzing the problem it is suggested that study be given to four main considerations: quality, [illegible] cost of production and marketing. These are all problems of the grower over which either as an individual or as a member of an association [illegible] control. The first [illegible] production problems [illegible] most direct bearing [illegible] the fourth, that of marketing.

QUALITY COMES FIRST

[illegible] are few fruit growers who have [illegible] the advice "Grow fruit of [illegible]." In fact, the word [illegible] used until doubt- [illegible] of its real signi- [illegible] to be given for- [illegible]

[illegible] thought to consider [illegible] know [illegible]

fruit, that it can grow many kinds of fruit and that it can produce quality. Those are absolute facts of which all Californians well may be proud, but as one is often most apt to slip when he feels most secure, would it not be in order to let these facts sink in and then individually ask ourselves the straightforward question, "With the many advantages of California climate, do I produce fruit of superior quality as compared with that of my competitor, the fruit grower of Michigan or Georgia?"

BEWARE OF INFERIORITY

In order to answer this question satisfactorily it is necessary to have a clear idea of the meaning of quality. "Quality" as applied to fruit is a rather indefinite term and furthermore it may be qualified by the adjectives "excellent" or "good." However, without being so qualified it should indicate excellence of character or natural superiority—something which on the whole is decidedly above the average. In fruits it stands for size, color, texture, flavor and freedom from blemishes. Usually size is considered the first requisite of quality but if any of the other attributes are lacking it would not be possible, strictly speaking, to have a quality fruit. Fruit of high color naturally is attractive to the eye and meets the most ready sale. Color also is not altogether divorced from good flavor, while both size and color will often cause a prospective buyer to draw his own conclusions as to texture and flavor. Small size and poor color are indications that for some reason the fruit was not grown under good conditions, and poorly grown fruit is usually characterized by tough, leathery or dry texture and inferior flavor.

Blemished or imperfect products, whether it be fruit which the grower has to sell or shoes which he has to buy, always sell at a discount. Only the perfect article is in demand and brings the highest price. Everyone wants the best and those in closest touch with marketing conditions have no fear of overproduction and red ink prices for quality fruit.

The raising of a superior fruit crop depends first and foremost upon the section in which the orchard is located and the soil in which the trees are growing. In a State with as varied climatic and soil conditions as California, it would seem superfluous to assert that many localities are unsuited for fruit production. Many sections will grow one fruit or even one variety of a fruit to a high degree of perfection, while an attempt to grow other varieties or other fruits in that locality would prove a failure.

LOCALITY MOST IMPORTANT

These facts are well known to all who are familiar with western agricultural conditions and yet there are many growers who have unprofitable varieties or have orchards located in unfavorable sections for producing real quality fruit. In most years they may obtain fair yields. The fruit may grade "fair" quality, and in years when the total crop is light fair returns may be obtained.

In years of heavy production, however, such fruit is difficult to sell, perhaps on account of small size, fog marks, uneven ripening, raincracks, frost rings, dry soil, or the general prevalence of certain diseases or insect pests, difficult or impossible to control. Each and all of these took their toll from the fruit growers last year.

THE QUANTITY FACTOR

While there are many influencing factors in producing high grade fruit, such as general good care of the trees, proper pruning, thinning, spraying, cultivating, fertilizing and irrigating, still outstanding quality is confined largely to those sections which possess all the natural climatic and soil conditions inherently suited to a particular fruit. Where one is fortunately located, the right practice at the right time and in the right way will bring results. For those not so fortunate, the growing of a high grade product is exceedingly difficult, if not impossible. With quality as the mainstay of California's fruit industry and competition becoming greater each year, an inferior grade of fruit, which costs as much to handle and ship as the best grade, cannot be hoped to bring a profitable net return. To those whose fruit the past year did not any more than pay the cost of production the question of its quality deserves first consideration.

While fruit of superior quality always returns the highest price per box or ton, the *(Continued on Page 10)*

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FARMER'S *Viewpoint*

FOOT AND MOUTH DISEASE.

For several weeks, California farmers and stockmen have been undergoing a very trying experience. The dread foot-and-mouth disease, one of the most virulent animal maladies known, has made its appearance in several counties, demanding the most drastic control measures and quarantine regulations. Coming on the heels of drouth and other difficulties, this seems to many friends of agriculture like the "last straw."

Breeders, dairymen, feeders and all branches of the meat industry have been thrown into a state of uncertainty and dismay. According to a statement by the Agricultural Experiment Station, there is reason to believe the infection was introduced by feeding to hogs garbage from steamships arriving from foreign ports.

WHAT EVERYONE CAN DO.

Unfortunately the only known method of stamping out this disease is the one which has been successful in the past—destruction of all infected animals and establishment of rigid quarantine regulations. This may seem like a terrible economic loss, and it works a real hardship upon many individuals, but any sacrifice is better than to allow this plague to spread!

All should co-operate with the officials by reporting suspicious cases and observing religiously the temporary regulations. It is suggested that dogs be kept tied and visitors be excluded from enclosures containing livestock. Pigeons, chickens, rats and cats also may carry the infection from farm to farm.

PROMPT ACTION COMMENDABLE.

Another possible source of infection is in raw skim milk, returned from central skimming stations. Feeding of garbage is regarded as especially dangerous at this time. It is suggested that, until all centers of infection have been ascertained, gatherings on stock farms be discontinued. Public sales also are regarded as a potent measure in spreading infection.

Citizens are requested to report to county officials any observations of cattle, sheep, swine or goats showing lameness, drooling of saliva, mouth sores, or sores on udders. A sudden decrease in the milk yield of any dairy herd also should be regarded with suspicion.

The California State Department of Agriculture is to be commended upon the thoroughness and dispatch with which officials have taken the situation in hand.

OWNERS SHOULD BE COMPENSATED.

Each must accept his share of the heavy economic loss that always results from such an unfortunate situation. Temporarily, the normal flow of animals from farm to buyer is dammed. Markets may be demoralized for a time; a state of uncertainty is created.

It is not right, however, that the owner of stock which is slaughtered should carry his great loss unaided. When Government or State officials, armed with authority of the law, destroy his means of livelihood suitable compensation must be provided. This is undertaken by the Federal Bureau of Animal Industry, which is expected to appraise and purchase condemned animals. In the case of purebred herds, however, the appraisal may be woefully low.

NO CAUSE FOR GENERAL ALARM.

This is the first appearance of the disease in California—although during the past fifty-five years six different outbreaks have been stamped out in various parts of the United States. There is every reason to believe the present epidemic will be conquered with the minimum of loss and successfully confined to limited areas. Except in very rare cases, the disease is not transmissible to human beings, and even if acquired is not likely to prove fatal. To those readers who directly or indirectly have suffered loss, ORCHARD and FARM extends sincere sympathy.

WHAT'S NEW? *Keeping Abreast of* Agricultural Progress

Lower Sheep Freight Rates

OWING to the recent reduction in freight rates on sheep, a doubledeck car of feeders can be shipped from Bakersfield to Tehama, or vice versa, for $100. Some of the rates have been reduced 50 per cent and are lower than ever before in California, according to W. P. Wing, secretary of the California Wool Growers' Association. The Southern Pacific, Western Pacific, Northwestern Pacific and Santa Fe have agreed to the rate reduction.

Pea Aphis Injures Alfalfa

WIDESPREAD damage to Los Angeles County alfalfa fields recently has been done by the pea aphis. Such attacks are seasonal and exceedingly rare, according to Extension Service experts. It is believed that only the first cutting will be affected and the curing, raking and burning of this hay is recommended. The only known method of direct killing of pea aphis is to spray or dust with nicotine sulphate.

Cross Caribou with Reindeer

LARGE caribou bulls from northern Alaska are to be crossed with reindeer living farther south, under the direction of the U. S. Department of Agriculture.

There are a quarter of a million reindeer in Alaska and by improving the stock in this manner an important meat industry will be developed according to Olaus J. Murie of the Biological Survey, who has spent three years investigating the caribou herds of northern Alaska.

Short Engineering Course

A FIVE-DAY agricultural engineering school will be held by the University of California at Davis May 12-17. This short course in farm mechanics is designed for those who wish to learn how to repair and adjust gas engines, tractors and farm machinery; learn more about concrete work, farm building construction, reading of plans and estimating of costs; operate irrigation and domestic pumps, install farm lighting plant, water supply or sewage disposal systems—or those who have any other agricultural engineering problem to solve.

Farm Bureau Fair Pays

THE 1923 San Diego County Fair, which was managed by the Farm Bureau, paid a profit of $2500, according to J. Claude Wilson, vice president of the organization.

An examination of the financial statement issued by the fair managers discloses the interesting fact that only $1750 was paid out for entertainment, while $2547 was disbursed for premiums. The total expense of the exhibition was $18,290.

Orange County is another community which turned its fair over to the Farm Bureau and is well satisfied with the result.

Humboldt Buys Redwoods

THE Supervisors of Humboldt County have voted to purchase the North Dyerville Flat redwood grove for the benefit of the public. This action followed the gift by the Pacific Lumber Company of 289 acres of redwood trees, containing 23,000,000 feet of saw timber, known as the South Dyerville Flat, to the Humboldt State Redwood Park.

The latter tract is to be known as the Simon J. Murphy Memorial Grove and is located between Miranda and Dyerville, as is the other tract mentioned. With the exception of two small tracts, which the Save-the-Redwood-League hope to acquire in the near future, the State now owns a grove of redwoods 12 miles long, the first unit in the State Redwood Park.

Jap Beetle Serious Pest

THE Japanese beetle recently has become a serious pest in Pennsylvania and New Jersey, according to H. P. Stabler, horticultural commissioner of Sutter County. When first noticed this insect covered only about 160 acres. Within a year or two it spread over 171 square miles, and in 1922 affected 770 sections of land. A year later the beetles were found on 2500 square miles.

"This beetle destroys every tree, plant, fruit and vegetable in its path and increases so rapidly that so far it has been impossible effectively to check it by spraying," states Stabler. "As many as 1500 larvae have been found in a single square yard of ground and from two acres of peach trees over four barrels of beetles were shaken—and the next morning the beetles apparently were as numerous as before."

Electricity Fixes Nitrogen

SODIUM nitrate is extracted from the air by a $250,000 plant at La Grande, Washington. The electric arc process is employed and the product used in the dye industry. Six thousand horse power is utilized in this plant. The only other air nitrogen fixation plant in this country privately owned and operating on a commercial basis is said to be located at Syracuse, N. Y., and employs the modified harber process.

Germany has two plants which annually extract 330,000 tons of nitrogen from the air, while the Muscle Shoals plant in Alabama would be guaranteed to produce only 40,000 tons annually, under the Ford plan, according to the American Nitrogen Products Company, from which the foregoing information was obtained. This concern favors Government loans at a low rate of interest to manufacturers of nitrogen, a material greatly needed in the farming industry.

Import Sheep Shearing Crews

CALIFORNIA sheep shearing unions demand 15 cents per animal and 3 cents more for the use of shearing machine, together with board. Arizona, Utah and Wyoming sheep shearers prices are two to three cents less than the above figures. As a result the California Wool Growers' Association is making arrangements to import shearing crews from the States mentioned.

Where Farming Trouble Lies

FORTY-TWO per cent of the farmers of the United States feel that their financial difficulties are due to low prices of farm products, the Department of Agriculture says.

Seventeen per cent attribute their condition to high taxes, 11 per cent to high costs of farm labor, 10 per cent to high freight rates, 10 per cent to high interest rates; 6 per cent to reckless expenditures during the boom period, and 4 per cent to too much credit.

Another Ton Litter Contest

AT THE recent meeting of the California Swine Breeders' Association, arrangements were made to continue the ton litter contest another year. Pigs farrowed between February 15 and April 15 will be eligible to entry.

Harold Anderson, winner of the contest last year, proved that it paid to feed well. He produced a litter that weighed 2725 pounds in 180 days on such feed as skim milk, barley and tankage. Not much pasturage was available, but the pigs had a certain amount of exercise, plenty of shade and pure water.

Plan Summer Citrus School

ARRANGEMENTS are being made by the University of California to conduct a summer school of subtropical horticulture at the Riverside Citrus Experiment Station, June 25 to August 8. The following subjects will be treated: Citriculture, Subtropical Fruits, Diseases of Subtropical Fruits and Insect Enemies of Subtropical Fruits. Instruction will be both scientific and practical and will cover such subjects as propagation, planting, varieties, breeding, tillage, fertilization, pruning, diseases and injurious insects, picking, packing and marketing.

Lodi Wants Dairy Cows

"WE WANT another basket for some of our eggs," is the S. O. S. call recently sent by a Lodi banker to Sam H. Greene, secretary of the California Dairy Council, in asking for a representative to assist in developing the dairy industry in the Lodi district.

"Although ours is one of the richest fruit and canning districts in the world, we very much need a greater diversification of crops," points out Willard E. Speares, secretary of the Lodi Chamber of Commerce.

"We feel that dairying is the thing that we all can get behind and advocate for the farmers of this section."

Wind Injures Avocado

ANALYSES of windfall avocados by the University of California showed that only one variety contained even one-half of the proposed standard of 75 per cent of the full fat content. The specimens examined also showed considerably more skin and seed than sound, mature avocados.

A number of Fuerte trees near Whittier lost 30 per cent of their fruit during a severe windstorm last winter, while Lyon trees lost only 10 per cent of their crop, according to A. E. Rideout, avocado specialist. Figures giving comparative windfall damages sustained by these and other varieties in different localities would furnish data for estimating avocado wind resistance, it is pointed out.

Farmers Withhold Milk

AS A result of a recent attempt by the [illegible] Chicago milk dealers to reduce the price of cream from $2.75 per hundredweight to $2.60, most of the dairymen in that district refused to deliver milk to the supply companies.

Metropolitan newspapers refer to the action of the farmers as "a producers milk strike," but Frank T. Fowler declares this is unjust, since farmers are merely refusing to sell their product at unremunerative prices, something which producers of other kinds of goods continually are doing.

Milk retails in Chicago for 14 cents a quart, which is the San Francisco price, although dealers in the latter city pay $3.11 for their supplies. In Milwaukee the wholesale price is $3 and the retail price 11 cents.

Preventing Tuberculosis

"IN THE year just past 1273 California meat animals were found to be so extensively affected with tuberculosis by Government and State inspectors that the diseased carcasses were condemned outright," states J. P. Iversen, head of the Division of Animal Industry, State Department of Agriculture.

"While there is no means of accumulating figures to show the probable number of people who have become infected from handling or eating the meat of one animal having a generalized case of tuberculosis, it is, nevertheless, logical to infer that exposure to the disease would constitute a considerable number and this, when multiplied by 1273, will give some idea of the number of meat consumers affording protection last year against a loathsome disease through an adequate inspection of their meat supply."

Your Garden of Flowers

By HELEN TEMPLE

THE AGAVE ATROVIRENS.

Words almost fail me when I attempt to describe this wonderful plant with its magnificent blossom. Seeing it in the distance, I felt suddenly as though I had stepped back into the forgotten ages and had found an antediluvian plant that had strayed into the garden. A close-up view brought nothing but awe for its majestic beauty.

HELEN TEMPLE

The plant itself stands about seven feet high, while the immense spike of bloom lifts majestically skyward until the weight of the blossoms bends it into an arch nearly touching the ground.

The plant is grayish-green in color and the bloom is waxy-white, tinged with green. The leaves of the plant are shaped similar to those of the common Agave, but they are free from barbs and spines. At the base of the plant and about the thick trunk, there are dozens of small plants which will replace the old one after its death. Death is said to occur after its blossoming season has passed.

The spike of bloom, which tapers into a dull point at the tip, begins opening its blossoms at the base, quite unlike many of our common plants that produce their flowers on spikes.

Though the Agave is fairly well known in Southern California, it has been found in bloom but twice. The first bloom was found about seven years ago in a Santa Barbara garden, I believe. This bloom, the second, was found in the Shepherd-Francis gardens of Ventura coming from a plant which has been growing for many years. Why it had never bloomed before or why it bloomed now, no one knows. It is just one more of the wonderful things that happen once in a lifetime.

The Agave is a native of Mexico and Central America, where it is of commercial value to the natives for producing a fiber called pita, which is used to make ropes, thread and cord. It is also used to make three of their most common intoxicating drinks. The Indians use the thick leaves as a food after they have been roasted.

In Spain and Portugal as well as parts of Mexico, it is quite common to see the spiny varieties of the Agave used as a fence, the sharp barbs of the living barrier being unusually effective against intrusion. Though the Agave is a native of Mexico it seldom is found in bloom even here.

NOW THE RADIO GARDEN.

A friend of mine has a radio set. Those few words tell the whole tale; she is radioized. She cooks by radio, sews by radio, entertains by radio and last but not least, she gardens by radio.

Today she said, "The radio tells us we must divide our dahlia bulbs now, but not plant them. And the radio says that we must plant roses now."

And because she is radioized, she will plant roses and divide dahlias, and if she has no dahlias, she will order some to divide, and if she has no roses to set out, one of our nursery men will receive a rush order from her.

Radio, I shall rise up and call you blessed if you can promote a livelier interest in gardens of flowers.

Dahlias may be planted now in Southern California, though the usual time to plant them is in the early spring, when the trees begin to put out leaves. Dividing the clumps and preparing them for planting often inspires one to get them into the ground at the same time, thus avoiding the second handling.

Roses? Yes, we have roses, Mr. Radio Man, and all the gardeners in the country are setting out roses now. Perhaps I have urged the planting of roses more than necessary, but there are so few real rose gardens that I feel almost impelled to do so.

ANNUALS TO PLANT NOW.

Annuals which will bloom during the summer and fall are the zinnia, straw-flower, pansies, verbena, nasturtium, marigold, butterfly flower, mourning bride, mignonette, portulaca, phlox, annual poppies, love-in-a-mist, stock, lupina, lobelia, blanket flower, painted brush, sweet alyssum, snapdragon, daisies, Joseph's coat, aster, cockscomb, cornflower, sweet Sultan, cosmos, larkspur, candytuft, Chinese pink, balsam, baby's breath, kochia and sweet peas.

In Southern California many of these annuals may be planted in the open at once, but in the interior, plant only the hardiest out-doors, and sow the others in seed boxes.

PERENNIALS TO BE PLANTED NOW.

Perennials often will bloom the first year from seed if they are hurried into the ground. After they are once established, it is unnecessary to replant them for two or three years.

The Oriental poppies, bleeding heart, blue-bell, Canterbury bell, carnation, hardy asters, Shasta daisies, feverfew, columbine, lavender, scabiosa, hollyhock, windflower, aconitum, monk's hood, sweet William, [illegible] larkspur, gaillardia, foxglove, Iceland poppy, hardy phlox, viola, hemerocallis and dianthus may be planted at this season. Many perennials bloom as soon as the annuals, but unlike the annuals, which die down in the winter, they stay green and begin flowering early the following season. For best results perennials should be cut back after flowering.

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A 24″ cylinder with adjustable concaves has great threshing capacity. A straw rack of galvanized sheet metal, 42″ wide and 96″ long insures thorough separation. Two grain pans are provided, both delivering to the front end of the chaffer sieve. The final cleaning is performed by an entirely separate fanning mill with a short stroke shoe, on top of the machine and under the eye of the operator.

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Protect Young Trees

AN important provision, overlooked by many who are starting walnut groves, is protection of the young trees, according to C. M. Connor, Tulare County farm adviser.

It is difficult to get walnuts started on the floor of the valley, largely because of our heavy winter frosts and summer heat. But once over the dangerous period of the first two years, they thrive wonderfully under proper conditions.

Care must be exercised also not to injure the trees with implements—a frequent contributing cause of crown gall.

In some districts it is the practice to tie corn or straw about the young trees during the winter. Wire protectors may be needed. Whitewash is the standard preventive of sunburn. The practice of growing inter-crops in young walnut orchards is a prolific source of mechanical injury.

Mr. Farmer, Could YOU Prosper on Fertile Land at $20 an Acre?

If you are making a living on expensive land why not go where low priced lands yield more abundantly than where you are? In Western Canada the 1923 Wheat crop averaged over 30 bushels to the acre. The richest land is still available and at an average price of $20 per acre. Canada's 1923 crop broke all previous records. You should take advantage of this condition. You can farm low priced land with high yields and even with average prices become prosperous. Where else can you find all these factors in your favor? It may mean independence for you and you owe it to yourself to find out all about it.

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Home Farm Happenings

By ONE OF US

CULTIVATING DRY SOIL.

Old timers who remember—or forget—about the weather in former years say this has been one of the driest winters since memory runneth not to the contrary. There have been a few drops of rain and about four inches of snow. The top of the ground is wet down two to four inches; below that the soil is "powder dry."

W. S. GUILFORD

Some neighbors have been plowing and seeding barley for some time in spite of the dry weather.

There always is a lot of argument here about dry plowing. Some claim that it "kills" the land, others believe it is better to get the crop in dry than to wait.

I wonder if anyone has determined just what dry plowing does to land? Some say that when soil is plowed dry the granular texture is broken into lumps and dust and that perhaps many million bacteria are killed. With a shortage of bacteria to liberate plant food, there would be a corresponding decrease in plant growth.

Has any reader anything to say on the subject? I am sure Editor Knollin would be glad to give space, because it is a much discussed and very interesting subject.

SHORTAGE OF STOCK FEED.

Feed is mighty short on the ranges and on all of the valley lands—in most places there is practically none. Hay and grain are being fed to sheep by those who are fortunate enough or long-sighted enough to have a supply of such feed.

Some sheepmen who have lambs coming are killing one of each pair of twins; others are reported to be killing all the lambs, hoping to save the ewes.

Another report is to the effect that a bunch of 3000 ewes and lambs—all lambed out—is for sale at $5.50 for the ewes with the lambs thrown in. But a buyer would be in no better shape as far as feed is concerned, than the seller. If feed were available the sheep would be worth more than twice that figure.

With the ground freezing every night there is not much chance of feed until the latter part of March, even with rain now.

PREPARE TO MARK LAMBS.

Here at Home Farm—with a small band of registered Shropshires—we are all right, as far as feed is concerned. The ewes are too fat, if anything.

Lambing will start in a few days and John and I have been getting all the things ready to tag the ewes as fast as they come. The ear punch is ready and plenty of flock number tags are ready for this season's crop.

Not much of a job—putting a number tag in each lamb's ear and making a record of the flock and association number of the ewe—if the job is done promptly, as it should be.

One thing that disgusts folks with registered stock is letting the registration work get so far behind that it is a real mean task getting the numbers straightened out.

SPRAYING PREPARATIONS.

Trying out the spray rig—ordering such extras as we are sure to need—and making everything ready for the spring spraying is one of our recent jobs.

It has been so dry that when rain does start it will probably not let up for a while. Then every day will count, when buds are swelling and spraying should be done at once. Last season there was trouble with the sprayer, just when we most needed to be at work with it. John claims that will never happen again.

"PIE MELONS" GOOD FEED.

There was a big crop of volunteer pie melons (citrons) in the river bottom this season. A few were planted four or five years ago and the crop—without planting or care—has been increasing every year and spreading to other fields and ranches.

O. W. Jarvis, appraiser for a big combination of banks, former farm adviser in Sacramento County and general all around agricultural expert, says these melons have as much feed value as good silage. They certainly are relished by all kinds of livestock, which is thriving splendidly on them.

After they are frosted and start to decay they are easily "gutted out" and every where they were hard on livestock a good friend a way to feed them.

Our dog Scaff golding was quite a round, hard melon between his front feet and work away at it with his teeth until he has made a hole in it—then eat it all up.

Pie melons look just like round watermelons but are solid all through and the pulp is well filled with seeds.

FAT STOCK A COMFORT

All of the Home Farm stock went into the winter fat. Cattle, sheep, hogs and horses are fat now. Nothing is a greater comfort than a lot of fat animals and nothing much more grief than thin stock and short feed.

It has been particularly pleasing to note the beautiful and symmetrical development of a lot of hogs when they get what nature intended them to have—a wide variety of feeds and plenty of range.

Some young registered [illegible] that had been closely confined on dry feed during the fruit harvest were turned out on the river range with the rise of the crickets, wild pie melons and [illegible] of a neighbors cornfield. Besides when they were turned out they did not look too good—they needed just what they were about to get. Now they are fit for the show ring. Barbs grown and filled out and are [illegible] of [illegible].

Handle Your Hay Crop With the Good Hay Tools Sold by the McCormick-Deering Dealer

OUR DEALER who has his store near you will furnish you with just what you want. The hay tools sold by him will put your hay where you want it, the way you want it, in the quickest, most economical manner. McCormick and Deering and Milwaukee mowers can be depended upon to cut hay every minute. The self-dump rakes are known the world over for their quick, clean work, and light draft.

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The McCormick-Deering self-dump rake is of steel construction throughout. It is so strongly built that it will stand up successfully under the roughest usage to which it may be subjected in the field. The best angle steel is used in the construction of the frame. The McCormick-Deering is the kind of rake that leaves a clean field.

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Pigeon Equipment Need Not Be Expensive

CALIFORNIA "has it all over the East" in the matter of raising pigeons according to C. R. King, the Hayward squab expert.

"In the East the parent birds do not feed the youngsters as well, and sometimes the squabs are frozen in the nest. All buildings must be constructed with a view to warmth and protection from the weather, while in California the lightest type of construction will do," he points out.

The roof of the pigeon house, however, is the important part out here. I prefer shingles, although some breeders use paper roofing."

Economy of space is attained in the King ranch by extending the "flight," or wire covered compartment, over the roof. "It seems to be the nature of pigeons to spend a good deal of time on the roof and it encourages exercise," explains the owner. Furthermore, the houses can be built back to back, in long rows, facilitating care of the inmates. All but the homers are confined constantly.

Part of the King houses are equipped with cement floors and part have dirt floors. "I believe I prefer the latter," says this veteran breeder. "The cement gets very cold and does not seem to furnish the natural environment the birds like. However, the cement may be cleaned more easily." The houses are cleaned at least once a month in summer, but only two or three times during the winter. No disinfectant is used, as mites and lice give little trouble.

The alleys between the rows of houses are paved, and the outer pens are equipped with automatic drinking fountains, installed at a cost of about $2.50 each. It is considered very important to have fresh water before the birds at all times.

In some of the houses the nests are removable, but in others they are built in. King prefers the latter type, because there is less danger of the birds becoming injured or entangled, he says.

Tobacco stems, cut in 6-inch lengths, are used for nesting material in summer; alfalfa in winter, for its greater warmth. The material is scattered on the floor, as the pigeons prefer to make their own nests.

Above—This feed trough, designed by C. R. King, is easily filled and cleaned, yet the contents are protected. Below is shown equipment used for feeding pigeons in the King lofts.

Raising Young Turkeys

JAMES WEBER, Santa Clara County, wants to know how to raise turkeys. These fowls like chickens have been kept in close confinement and on free range, as well as every system in between the two, and success has been secured in all ways. I believe, however, they will do best when given free range.

I would suggest that you write to the United States Department of Agriculture, Washington, D. C., for Farmers Bulletin No. 791, which gives complete information on turkey raising.

Start feeding two days after the young poults have been hatched, then use buttermilk, if possible. The first feed should consist of a baby chick scratch feed which should be given in but very little at each feeding, in order the keep them hungry. You might feed the scratch five times a day. Give plenty of coarse sand or grit.

The second week you might start with a chick mash, leaving it before the poults for about two hours a day. Not only should the poults be given plenty of exercise and range, but they should be given cut greens as well.

After the second week and until the seventh week, increase the mash gradually from the chick mash to a developing mash. Give the birds plenty of grit, charcoal and shell. Also you might supply a coarser scratch.

The liability of overfeeding the first two to three months is a real danger. During this period it is well to change to whole wheat and cracked corn and to feed this twice a day. It might be well to change the mash to an egg mash and to feed it dry for three or four hours a day, during the middle of the day.

Any building that gives plenty of room and fresh air, prevents drafts and is dry should prove satisfactory for turkeys.—W. J. DRYDEN.

Starting With Pigeons

SANTA CLARA COUNTY subscriber wishes to know how to start in the pigeon business. The pigeons should be confined in a small run, so that they can be caught with little trouble. The building should be high enough for the required number of birds, but not so high the birds cannot reach it. The roof should be shingled. The top of run built to top of roof and roof in order that the pigeons have the use of the roof. A run [illegible] would be sufficient for general purposes.

The female pigeon usually will lay [illegible] at a period and then start to [illegible] the eggs [illegible] under another bird. [illegible] is ready to lay again [illegible] hatching. About all that [illegible] and the pairs will take care of their young.

In mating, the birds will make their own selection, although to improve the breeding stock it may be necessary at different times to try and force mating by placing a new bird in the house with a single female.

The pens and houses must be kept clean, and the pigeons given plenty of grit and water. The feed may consist of red or white milo, Egyptian corn, whole yellow corn, wheat, peas, millet and hemp, with oyster shell and charcoal. The peas should constitute from 20 to 30 per cent of the ration, as they take the place of green feed.

Squabs are ready for market when they are about four weeks old. They can be fed by hand before they reach 10 days old, in case the parents leave them before that time.

Squab raising is a big problem. I would suggest that beginners write to the Department of Agriculture, Washington, D. C., for Farmers Bulletin No. 68[illegible].—W. J. DRYDEN.

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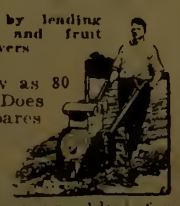

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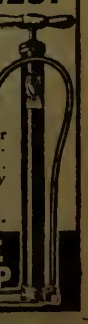

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OUR 1924 CHICKS. Prize quality. [illegible] delight new [illegible] utility [illegible] alike. Capacity 30,000. White, Brown, Buff Leghorns, Anconas, Reds, Barred, White Rocks, Minorcas, Wyandottes, Brahmas, Andalusians. Ducks, [illegible]. From [illegible] world's greatest layers. [illegible] illustrated book [illegible]. Nearly [illegible] big winter laying [illegible] growth [illegible]. Write [illegible] STATE POULTRY [illegible].

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$16 hundred delivered. No other kind but thoroughbred Buffs from prize-winning, egg layers. No pullets used [illegible] art [illegible]. Free [illegible]. Send for catalog. ORINDA PARK BUFF LEGHORN HOME, Berkeley, Calif. Route 1, Box 426 E.

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Hairy Peruvian, smooth Peruvian or common new crop high purity and germination. Write for prices and samples. E. F. SANGUINETTI, Yuma, Ariz. Established 1884.

GLADIOLUS, mixed, large, $1 hundred; size, 40 $1.50, planting stock, 100 [illegible], bulblets 1000 $1.00. [illegible] GENSIN, Salinas, Cal.

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240 ACRES IN SOUTHERN OREGON—45 acres irrigated, private owned [illegible] and sufficient water free for all purposes, deal stock, farm or fruit farm, good cattle range, no droughts, $5000 modern bungalow, barn, garage, blacksmith shop, etc. Milk cows, bogs, horses, [illegible] needed farm implements and tools, no extras to buy. Will take some [illegible] property, same cash terms on bal. From owner [illegible] price $12,000. [illegible] FRANK [illegible] Oregon.

[illegible] WANT a home in a [illegible] valley [illegible] on three [illegible] rail[illegible] where [illegible] summers [illegible] where a farmer with $1000 can [illegible]. [illegible] yearly payments [illegible] MEURER [illegible] Box 13 [illegible].

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EQUIPPED FARMS and village places throughout 34 States. To settle estates, several with live stock, tools and crops. Easy terms. Big new 160 page illustrated catalog free. E. A. STROUT FARM AGENCY, Dept. [illegible], North Marengo Ave., Pasadena, Cal.

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HAVE taken in on trade and will sell at a bargain a well-equipped 40-cow dairy in Humboldt County. Address W. C. BRYANT, College of Agriculture, Berkeley, Calif.

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CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

FARM WANTED—Immediately from owner. Send particulars. MRS. ROBERTS, Box 42, [illegible], Ill.

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PIGEONS—Squab [illegible] king young squabs for [illegible] JAS. A. AVERY, [illegible] R. R. [illegible]

Orchard and Farm Classified Advertisements reach 300,000 families every week.

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Cup to Glenn Barass

THE silver trophy donated by ORCHARD and FARM for the dairy products judging contest, held in conjunction with the annual meeting of [illegible]

California Dairy Industries Association at Davis recently, was won by Glenn Barass, University [illegible]. As the highest individual scorer in the contest, Barass will have his name engraved on the cup, but the trophy will not be awarded permanently until the expiration of ten years, at which time the individual with the highest total score will be permanent owner.

Formerly known as the California Butter, Cheese and Egg Exchange, the [illegible] Association, the organization changed its name at the last meeting in order to include all branches of the industry.

The feature of the meeting which created the greatest interest was the judging of quality of butter, cheese, milk and ice cream. M. A. Sabin of Bakersfield was first in market milk. H. Watson Alleras [illegible] cheese judging. Wrede [illegible] Farm Creamery [illegible] ors in the ice cream contest.

Glenn Barass, in addition to winning the butter contest, took highest individual honors and therefore won the trophy [illegible] the cup.

The recent student contest was [illegible] in attendance larger than that of previous year. There were [illegible] men representing [illegible] California [illegible] States.

Poor Butter Causes

ALBERT [illegible] of the San M[illegible] County Farm [illegible] poor quality of butter [illegible] without further particulars [illegible] however [illegible] from [illegible] where the butter is handled [illegible] of all the milk [illegible] with [illegible] every time they are used.

It is not likely that the difficulty is due to feed, although if the cows fed on which this milk is secured are on pasture it is possible they [illegible] some weeds which [illegible] factory flavor. If the butter is and hard to work it is [illegible] improved by feeding a small [illegible] difficulty is with your [illegible] than with your feed.

If you have any further [illegible] would suggest that you write to the Division of Dairy Industry, University Farm, Davis, California [illegible] them a full explanation of [illegible] in which you are handling your [illegible] G. L. [illegible]

California White Leghorn Breeding Farm
SUPERIOR ENGLISH LEGHORNS [illegible] INTERNATIONALLY KNOWN
THE WORLD'S BEST
[illegible]
ECKMAN & MILLIGAN, Lankershim, Cal.

Making Mohair in the Great Southwest

By A. C. GAGE

...T thousand Angora goats ... down the slope from ... mes in Yavapai County, Ari... nibbling here and there on ... way to the bed-ground and salt- ... the largest individual herd the ... has seen. There are, however, ... "lands," as the Southwest- ... men call them. Texas has ... 2,000,000 fleece goats.

... looks after two or three ... of these agile creatures ... enough in that district, where ... rees grow, but where desert ... is plentiful and maintains rov- ... cks year long.

... single herder came to camp. ... Mexican and spoke little ... His teeth were his most ... feature—white and even ... as he asked for sugar and ... broad mouth expanding in ... showed as perfect a set of ... ever supplied to a ... being.

... months he had been away from ... He obtained flour and other ... supplies for another period. ... morning he was off with the ... to new pasture grounds. ... two other herders were holding ... herd.

Twice each year these little mohair ... ducers are rounded up for shearing ... March or April in the spring, Sep- ... ber and October in the fall.

Modern indeed were the Laban and ... who owned these goats. None ... the latter were "ring-streaked and ... tted" all being pure white, fleecy, ... tous and uniform in size. They ... descendants of the goats of ... and Angora, in Asia Minor, ... the species originated, near the ... of Mount Ararat.

How these men lived in their wide ... ain, among their flocks, was mat- ... for conjecture as we drove in the ... 150 miles northwest from Phoe- ... under a sky that seems very ... with stars that stand out in glit- ... clearness.

... we had expected a modern house ... farm equipment, we missed it. ... re was a piano, phonograph, radio set, plenty of good food and comfortable beds. But everything was in a tent-house, covered with corrugated iron which had been discarded by the railroad, but just the thing for a canopy over the big tent-fly.

It was cool inside. The home element was there. The daughter, home from school at Prescott, sang the new songs. The mother did her shopping a hundred miles away and had the best, the fashionable things that delight women.

It is doubtful if the touring car that takes them fast and far ever had a top or side-curtains. They live in the open and when they start they go "high, wide and handsome" in their high-power car.

GOAT PASTURES OF SOUTHWEST

Outside that fertile area reclaimed from the desert by water from the Roosevert dam, one jumps off abruptly into the "goat country." Leaving Wickenburg, with its verdant fields of seven-crop alfalfa and its grapefruit groves, one enters the region of cactus, cat-claw, yucca, brome-grass, sage-brush and mesquite, with ocotillo wands sticking upward, bare or clothed with flowers—as the season may be.

Arizona, New Mexico and Western Texas have much of this land and it is here the largest herds of mohair goats in tht world are kept profitably. Under irrigation, a large part of this land would be highly productive. As it lies it is impressive by its immense desolation and lack of population. It is not all level plain, but there are rocky buttes, like the Organ Bluffs near Las Cruces, New Mexico; or the hills where Chief Cochise and his Apaches took their final stand in a rock-rimmed natural fortress, and infinite stretches of prairie.

On these areas are nearly three-quarters of America's mohair producers. The States reporting the largest numbers of goats (1920 census) were: Texas, 1,706,606; New Mexico, 226,862; Arizona, 161,124; Oregon, 133,685; Arkansas, 123,800; Missouri, 121,012; California, 115,759.

Sheep and Cattle

(Continued from Page 2)

... sell for about $200, but the outlook ... Herefords is good and the demand ... Range men simply cannot ... the price, however, until cattle ... itions become normal. It may be ... to four years, Mr. Briggs be- ... before conditions correct them- ... es.

BELIEVES IN SHOWS

This breeder is an enthuiastic show- ... knows the fitting of cattle to per- ... n, and values the State Fair and ... ock shows very highly. "There ... an show the public the class of ... we are raising and what we have ... The public exhibition is our ... window and absolutely necessary ... successful conduct of purebred ... k farming."

... is looking forward to the ... n Francisco show as of great ... At the last State Fair this ... exhibited the grand champion steer ... breeds, an animal which paid ... ums and for his carcass a sum ... $400 and $500. They also had ... champion cow, and in 1922 ex- ... the grand champion bull Lin- ... mino.

... Briggs Herefords are tested ... for tuberculosis by Fed- ... representatives, and in one more ... will be put on the list of ac- ... herds. Mr. Briggs is a firm ... in the reliability of the tuber- ... states that it is abso- ... for breeding stock.

... usually weigh from 800 ... at one year of age and ... from 700 to 900 pounds. ... identified by means of ... the ear and com- ... maintained.

... California with Southern ... formerly bred Here- ... states that cattle ticks ... mers drove them. ... conditions ... better, he points

... Herefords because he ... because he thinks it is a ... proposition. He ... the future demand for ... r than for any other ... There is only one way ... and ... downs and ... breeder's

... enterprise ... of ... reg ... They be- ... as the ... sheep because I did not want to keep all my eggs in one basket."

BUYS IDAHO SHEEP

He went to Weiser, Idaho, and purchased his foundation flock from the famous Butterfield farm, four years ago, and today asserts he cannot produce one-tenth the rams for which he has orders. He has bought the best rams obtainable and the records of his wool clip bear out this statement. The ewes average 15 pounds of wool per year, and the rams shear regularly from 20 to 30 pounds per annum.

The lambs are all identified with metal ear tags before they are two days old, and a complete record kept of the entire flock.

At the breeding season about 75 ewes are turned into each pasture with one ram. The ear tag record of every ewe is taken before she goes into this pasture and mating carefully noted.

Sheep prices are good and there is a big demand. "I think the future of the purebred sheep business is assured and that we shall never have any trouble to dispose of our rams. I have noticed that when sheep are high, cattle are low, and vice versa, and I expect this condition to continue."

The Briggs rams practically all are sold at auction, most of them going at good prices at the Davis and Salt Lake sale. The balance of the rams are sent to the two big Texas sales and every one brings a good price.

ANIMALS SHARE PASTURES

I have always heard that sheep spoiled pasture for cows, but Mr. Briggs laughed at this suggestion. "That was an alarm started by the range cattle men in their war with the sheep men but there is no truth in such a statement. Our sheep and cattle run in the same fields and there is never any spoiled pasture, I am sure."

Constructive breeding and stick-to-it-iveness form the keynote of William Briggs & Son's operations. It takes a higher type of man than is usually found on the farm or in the city to make a success of the purebred business and this man and his son certainly are doing it.

One cannot guess at breeding and records in the purebred business. The breeder must be absolutely honest with the public and with himself or he is soon found out and dropped from the "game."

MERCED DAIRY IMPROVEMENT

Merced County now has 2000 cows on official test, has two very active testing associations and hopes to have three by next June. The work is now under supervision of William H. Allison, Assistant Farm Adviser, who only recently joined the farm adviser's staff.

New Low Prices

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The original oil reservoir ring for oil-pumpers. Collects excess oil on each down stroke and empties on each up stroke, which ordinary grooved rings cannot do. Use one on each piston.

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Made in all sizes and over-sizes for every make and model of engine. Dealers everywhere either have McQuay-Norris Piston Rings in stock or can get them immediately for you.

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To advertise our highly grade factory paints we are making a special **one-cent offer** this week on our leader—OLD IRONSIDE—a heavy lead, zinc and linseed oil paint for only $2.85 a gallon. For each gallon you order at this special low price we will fornish you with another gallon **for only one cent.** Pay only $2.85 for the first gallon, one cent for the next, etc. You save $2.84 on every other gallon you order and, remember, **your money back if not satisfied.** We **give a written guarantee** for five years with every order.

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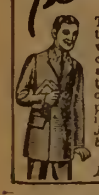

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When answering advertisements please mention this paper.

Making More Orchard Money

(Continued from Page 3)

commercial grower is interested also in quantity or tonnage.

The accompanying figures, representing the judgment of competent growers, will serve to illustrate.

The figures in column I represent the average yields where the fruit is grown under varying soil and climatic conditions and with a wide variation in the general care of the orchards. They do not apply to the best land for any given fruit, but rather include all types in which fruit is now planted. In every sense they are averages and the most successful orchardist will doubtless express surprise that they are so low.

The point to be emphasized, therefore, is that unless one is producing his fruit on very cheap land and is content with a bare existence, he cannot afford to be an average fruit grower. In most instances the yields per acre are not sufficient to more than pay the cost of production. If this be true with the average fruit grower of the State, what is the fate of those below the average? Surely these must find a way to increase their yields or seek some other line of activity.

Column II might be said to represent the minimum production with which present day orchardists should feel at all satisfied, while the most successful growers, represented by the figures in columns III or IV, secure a yield of three and four times that of the average.

Every grower of any experience is familiar with the principal orchard practices which make for larger yields and he may endeavor to carry out his pruning, cultivation and irrigation in the best manner possible. The different commonplace orchard practices, however, are far-reaching in their effects.

The tree, carrying on all the life functions of an animal, responds to every treatment given it. It is usually assumed that the response from cultivation or pruning will be favorable, but a close study of the situation may reveal the fact that man, through his efforts to make growth and fruiting conditions more favorable, actually has caused the tree to respond in the opposite way; he may have been his own worst enemy. Scientific investigation constantly is revealing new facts having most practical application to the intelligent orchardist.

Other factors affecting crop yields, however, may have been overlooked. The blossoms of most deciduous fruits require cross pollination before they will set fruit. Unless this has been provided for by planting two or more inter-fertile varieties blossoming at the same time, and unless insects, particularly bees, are present and climatic conditions are favorable for their activities, a satisfactory crop will not be secured.

Yields in many sections are only a fraction of what they might be if the trees could be irrigated during the growing season, especially if the weather is hot and dry. The trees at this time are evaporating large quantities of water and the young fruit—largely composed of water—needs a liberal supply to increase its size. To many, water is the limiting factor in their efforts to produce both satisfactory size and tonnage.

In other cases, the limiting factor is improper fruit varieties. Many varieties of fruit possess a narrow range of adaptability, doing well and producing large yields in one section, but not being adapted to the climatic conditions in another. Others, such as the sugar prune and Moorpark apricot, seem to have rather fixed habits of producing light or irregular crops.

Fortunately much information is now available on variety adaptations, but many mistakes of this kind are still in evidence and the sooner a given district can agree on a few of the most successful commercial varieties and correct their former errors, the more profitable fruit growing will become.

Fundamentally it is evident that the most successful tonnage is to be obtained in a given section where not only climatic, but also soil conditions are particularly adapted to the growing of a specific fruit. To produce twenty-four tones of peaches to the acre, California's record last year, means not only that the grower was carefully following the best known methods of production, but that the climatic and soil conditions were ideal for this fruit as well.

Prunes or pears grown under the same conditions doubtless would have returned far different yields. To secure tonnage, the soil must be right and an attempt to grow practically any of the deciduous tree fruits on shallow hard-pan soils or those soaked with water during the winter and dry during the summer is to invite many difficulties, much expense and perhaps a complete failure.

(A second article by Professor Allen, dealing with such topics as "Cost of Production" and "Marketing," will be published in a coming issue.—Editor.)

COMPARISON OF YIELDS OF VARIOUS CALIFORNIA FRUITS

FRUIT	I Average Yield Per Acre	II A Good Yield Which a Competent Man May Hope to Obtain	III Yields Not Infrequently Obtained Under Good Circumstances	IV Possible But Extraordinary Yields
Plums (crates)	250	450	650	850
Apricots (crates)	250	450	650	850
Apples (boxes)	200	500	900	1200
Peaches (20-lb. hxs.)	300	600	800	1000
Cherries (tons)	1.25	2.5	5.0	8.0
Pears (tons)	4.0	7.0	10.0	12.0
Prunes (dried tons)	1.25	2.5	3.0	5.0
Almonds (tons)	0.4	0.75	1.0	1.25
Walnuts (tons)	0.4	0.75	1.0	1.50

What About Surplus of Small Oranges?

By J. ELIOT COIT

THERE is hardly any question agitating the orange grower today as much as the problem of "off" sizes. While there is a certain market for large and small oranges, the principal demand is for medium-sized fruit, and an excessive proportion of either large or small sizes results in a discount in proportion to the amount of off sizes beyond that allowed in a standard car. Some years sizes run large and prices are discounted on account of too many "large-offs"; in other years trouble is made by "small-offs."

DR. J. ELIOT COIT

The people in charge of marketing the orange crop would like very much to be able to tell in advance how sizes are going to run, as a very small difference in the diameter of each fruit may make a variation of several thousand cars in the total crop and necessitate changes in advertising plans, which should be known months in advance of harvest.

This year sizes are running very small, especially in Valencias, and growers are much concerned as to the cause and the possibility of controlling sizes more effectively. It is generally recognized that, other conditions being equal, sandy soil will produce larger fruit than adobe soil. Also that young trees will bear larger sizes than old trees, particularly if the latter are crowded. But this year sizes are running small under almost all conditions and many growers are attempting to force more size into the fruit by heavy spring applications of nitrate fertilizers.

The writer has made observations on the setting of citrus fruits for many years and has come to the belief that the weather is the most potent factor having to do with size in oranges. The average orange tree will bloom from March 15 to May 1, but this blooming period may be made a month earlier or later by weather conditions.

Sometimes the early bloom sets the crop and in other seasons it is the late bloom that makes fruit. In 1923 we had unusually good weather throughout the blooming period and a very light June drop. The result was that fruit set all during the blossom season and the crop consisted of the largest total number of oranges we have had in many years.

Some Valencia growers were in favor of thinning the fruit this year, but were prevented from doing so by the fact that packing associations do not pool according to size and any grower who thinned his fruit would be reducing his crop for the benefit of neighbors who did not thin.

The most important factor in sizes is the fall weather. Dry north winds check fruit growth, while early soaking rains increase sizes. While fall irrigation is important, it does not fully take the place of rain.

This season Valencias stopped growing about October 1, on account of the large number on the trees and lack of early rain. Instead of good rains in November and December we had more and more dry wind, while the sizing of the fruit was kept at a standstill. Now that the Valencias are fully colored we cannot hope for normal sizes, although good rains at any time will increase sizes to a certain extent.

Heavy winter applications of nitrates will do much to increase the vigor of bloom and increase the setting for next year, but such fertilization cannot be expected to increase the size of fruit already stunted by an excessive amount of dry north wind.

In my judgment the size of oranges is dependent on the weather and is largely beyond the control of the grower. Of course it behooves every one to keep his grove in such good physical condition that it is less affected by adverse weather; yet I know of some very well fertilized and cared for groves which are today loaded down with very small fruit.

Citrus Mistakes

THE navel orange crop of 1923 in Tulare County was the finest ever grown in this district. It is worth while to look at the few poor orchards and discover the cause of their failure.

One orchard has been a big money maker and the bulk of it is in fine shape and carried a big crop this season.

In the center there is one block where the trees show lots of yellow leaves and the crop was rather short.

The superintendent claims he gave this block exactly the same care as the rest of the place, with one exception. The owner was short of funds and decided not to fertilize this block the past year.

The superintendent of another unprofitable block of trees was satisfied not to spend a cent on it that did not have to be spent. Last spring it was given a lick and a promise with no cultivation whatever during the summer and only an occasional irrigation.

The trees were all upset with this treatment and mistook fall for spring and bloomed in November. The tops of the trees had fine color, plenty of new growth and a crop of fruit that promised good dividends.

A certain small grove, on rich, fertile soil, cared for by the owner has been one of the big producers of this district and the crop the past season was perhaps an average one for the district. However, it was the poorest for several years on those trees, when it should have been a record-breaker judged by previous performances. The trees also show too much dead wood.

The owner thinks perhaps scale was to blame, but the horticultural inspector pointed out this place as one where an exceptionally fine job of spraying was done. The fault seems to have been in the tillage.

For several years the ranch has been run with a small tractor. A disc harrow was used for most of the cultivation, furrows being made with old fashioned furrowing-out shovels on a cultivator. Some cultivation was done with a light cultivator that works about as deep as the disc.

This combination would be hard to beat for packing the soil, and if there is anything an orange tree cannot stand it is a packed soil. If the owner had a big place he would probably get deep tillage tools, but to get them for such a small acreage seems an unwarranted expense. With things as they are, the owner is wishing he had a team of horses instead of a tractor.

TULARE FARMER

Avocados, Sycamores

W. P. HEIDEWALD, Fresno County, inquires about avocados and fertilizing sycamore trees.

When planting sycamore trees it is not necessary to use any kind of manure or fertilizer in the holes. If the soil is very poor and you want to prune the trees, dig in some good manure around the trees after they are planted but do not put any in the holes.

For information about avocados write to the Agricultural Experiment Station at Berkeley and ask for bulletin No. 365. I suggest that only a few varieties will endure the heat at Fresno. You should try the Tiger and Mexicola and give them some protection by wrapping the trunks, for the first few years.—J. ELIOT COIT.

Dairy Farming Inside the City of Los Angeles

By O. H. BARNHILL

DAIRY farming within the boundaries of a big city is an interesting anomaly, the explanation of which throws light upon other agricultural problems. The urban milk producer occupies land which in some cases has a market value for residence purposes of two or three thousand dollars per acre.

His hired help is apt to be lured to shop or factory, where wages are long and hours short. Furthermore, the quiet country seems a lonely, humdrum place compared to the city, with its white lights and exciting life.

Why doesn't the dairyman sell his farm and buy cheaper land farther out, where labor conditions are more satisfactory and overhead expenses can more easily be kept under foot?

In order to find an answer to these and other questions, one of the editors of ORCHARD and FARM recently visited the farm of E. Ciocca, San Fernando Valley dairyman. Most of this valley is a part of the city of Los Angeles, inclusion in the municipality having been effected in order to make available to farmers the water which the city pipes across the valley from the great aqueduct system.

Within the past two years the pressure of population has caused the subdivision, for residence purposes, of thousands of acres of fine farming land in the eastern and southern portions of the valley. An interurban electric line crosses the valley from east to west, while three paved boulevards divide its 47,000 irrigated acres north and south and an equal number east and west.

In addition to these excellent transportation facilities, gas and electricity are available. Just over the Santa Monica hills, two miles distant, lies the famous Hollywood district of Los Angeles.

It should surprise that enterprising real estate [illegible] are planning to cover the fertile [illegible] of San Fernando with homes and city streets. Already two [illegible] dairies in the valley on [illegible] have been disbanded and it is only a question of [illegible] when others must go.

Ciocca, however, is not worrying about pressure from and competition with the city. He is content to sit tight and make money, both by producing milk and watching his land increase in value. Hundred-dollar-per-acre jumps in price are not unusual where values are measured in thousands.

"The worst thing about moving farther out is the loss of equipment," explains Ciocca. "Of course, California dairymen don't have to build expensive barns as do those in colder regions, but we can't very well get along without silos, which run into money. My silo is made of cement blocks, which are fitted together without plaster and can be moved easily to cheaper land.

The silo in question is 50 feet high and 16 feet in diameter. It holds 300 tons of corn silage, which is grown on 15 acres. All manure is carefully returned to the soil.

In addition to silage, Ciocca's cows are fed plenty of good alfalfa hay, corn, oats, barley, bran and cottonseed meal. This fine feed, coupled with the fact that only cows of heavy producing strains are kept, accounts for the large flow of high testing milk which pours in a steady stream from this ranch.

One hundred thirty-five cows are maintained on 20 acres. Forty acres of alfalfa land across the road is rented and large quantities of alfalfa hay purchased. The cost is from $10 to $12 per ton, in the field.

Meadows are irrigated five times a year at a cost of $10 per acre and cut seven times, the annual yield averaging 10 tons of hay per acre. An electric pumping plant sometimes is used to supply irrigation water, but the cost is about the same as taking water from the city aqueduct.

Two good horses perform the team work. A stable 26x28 feet is being built for them. The roof is covered with building paper, 10 rolls of which cost $30. This covering is guaranteed to last 20 years and is preferred because San Fernando Valley winds have the unpleasant habit of loosening shingles.

"How do you manage to get and keep men to milk your cows?"

"That's easy," Ciocca replied. "Pay men good wages and feed them well. I pay two Italians $100 a month for milking 30 cows each and doing some other work."

Ciocca came from northern Italy 13 years ago, at which time he was 22 years of age. After working for wages on a dairy farm one year he rented for five years a dairy farm between Whittier and El Monte. Then he spent a year in the city, where he met and married a domestic science graduate of the Manual Arts high school.

The Ciocca dairy produces "Grade A" milk, which is bottled and sold at the ranch for 10 cents a quart. This is considered a very satisfactory price, as a good cow produces 24 quarts a day.

Inspectors from the State Department of Agriculture and the Health Department occasionally inspect Ciocca's ranch, but find little to criticise, the cows being clean and healthy and the bottling plant sanitary. Butterfat tests of individual cows are considered unnecessary, partly because the richness of milk varies from year to year and a cow that was culled out might, if retained, prove a profitable producer. A good dairyman, Ciocca believes, can judge pretty accurately from the volume and appearance of the milk flow whether or not a cow is profitable.

[Editor's note—Many producers and most authorities will take issue with Ciocca on this point.]

The 300-ton silo at the right is constructed of concrete blocks, which makes it easy to take apart and move to a new location, anticipating the time when the pressure of population forces the owner onto cheaper land.

Mrs. Ciocca, who was educated in domestic science at the Los Angeles Manual Arts High School, and who likes farm life.

When this enterprising young dairyman began operations he rolled up his sleeves and went to work—and hasn't taken a vacation since!

These sleek Holstein cows show both good breeding and good feeding, which accounts for their heavy milk production. The pumping plant is irrigation "insurance."

Pictured Farm Pointers

The animals drinking at this artistic watering trough on the Azusa Foothill Orchard Company's property suggest an unusual connection between agua pura and "white mule." The latter, however, is the real thing.

This is G. W. Covert and one of his well-pruned apple trees in the celebrated Gold Ridge Gravenstein apple district near Sebastopol. His small son is "up a tree," while the fine team is "rarin' to go."

These 110 stalks of wheat, five feet high, were grown from a single seed by Hugh A. Crawford, Napa County. It pays to plant such heavy yielding grain.

Sheet iron sled with long hitch, for hauling prunings.

Above—This stone horse corral near Claremont (L. A. County) is both useful and ornamental. Such stones also are used sometimes for making driveway and sidewalk borders. Left—"Working" a road with a steel drag. Used at just the right time it keeps the surface smooth and hard.

A. E. Rideout, Whittier avocado grower and nurseryman, trying to decide which will bring him the most money, this prize Lyon tree or the oil well in the background, which now is pouring "black gold" into his pocket.

ORCHARD *and* FARM

Blossom Time Foretells the Harvest

MARCH 23, 1924

He Sells Imperial Grapefruit Direct by Mail

Luscious Product Pleases Buyers

A FEW samples sent to friends and acquaintances five years ago represented the beginning of Emil Steiner's remarkable grapefruit marketing venture. During the past season more than 600 boxes of the famous fruit were expressed to buyers in all parts of the United States on orders received by mail. Every customer is a salesman, and the business is growing as fast as young trees come into bearing. In short, the middleman hasn't a "look-in."—*Editor.*

By ALBERT J. MASON

TO PICK a pomelo from the tree and eat it like an orange without sugar would produce a preliminary pucker, followed by a sour grimace, on the part of almost any grapefruit connoisseur familiar with the average California product.

Not so with the Imperial Valley fruit, however! Large, juicy, and unbelievably sweet, the grapefruit grown in California's farthest south county, has, by sheer quality, attained the highest pinnacle of popularity.

To be sure, there are various degrees of goodness, depending largely upon the skill of the grower. And few have achieved the enviable reputation enjoyed by Emil Steiner, whose ranch near Brawley is one of the most highly developed fruit farms in the Valley.

Emil Steiner is shown here just "holding his own." Four samples make a good armful!

Care in selecting nursery stock, protection of young trees, heavy manuring, intelligent irrigation and careful packing and grading of the fruit—these, in a nutshell, are the outstanding factors in Steiner's success as a producer. His marketing methods, however, are most interesting.

DEVELOPS SPECIAL TRADE

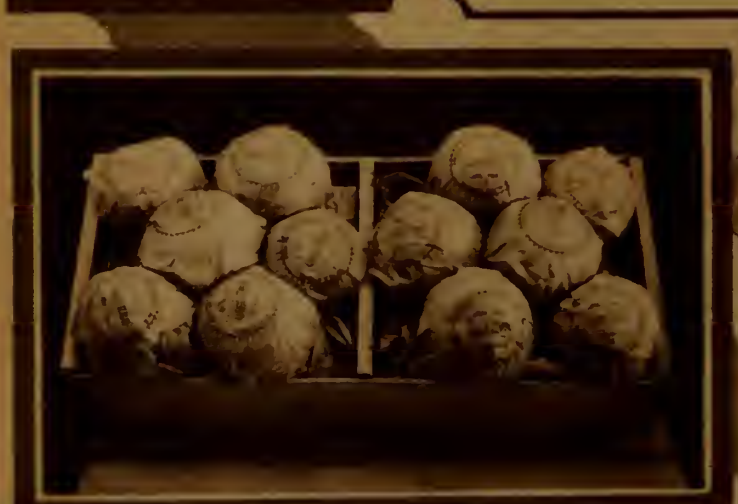
Steiner caters particularly to the Christmas trade. He packs not only regular boxes, containing 64 select specimens, but also half boxes and quarters. Shipped to New York and other Eastern points, Steiner's Imperial Valley fruit has found favor over Florida's best.

One Los Angeles customer ordered more than $125 worth, to be sent to a long list of friends and relatives in the East as Christmas gifts. Most of Steiner's customers place their orders by mail and are billed after shipment is made, yet credit losses are unknown. No doubt this is due to the fact that he is dealing principally with responsible people. He also sells to hotels and other consumers in larger quantities. "I make sure every box that goes out is absolutely right," he points out. "Most of my new customers are obtained by personal recommendation from old ones."

Prices have averaged from $4.50 to $5 a box for the entire crop, and an average yield is five packed boxes or more to the tree. Steiner has six acres, or 480 trees 8 or 9 years of age, in full bearing, and more than 25 acres in young trees, or to be planted.

This grower is raising his own nursery stock, budded from two selected trees in his own orchard. The young trees are protected in winter by a method in general use in the valley, inaugurated by Assistant Farm Adviser Ellis. Corn stalks, arrow weeds or tules are tied about the trunks and lower foliage and wired or tied about a stake, which is driven close to the tree to prevent possible wind damage. Preferably three ties are made: one near the head, one at the middle and one near the ground. This covering is left on from November until March.

Usually protection is provided the first two winters. On account of heavy frosts during the past season, it is estimated serious damage to 1000 acres of young orchards in the valley was avoided by this method, and Ellis' work, therefore, has been highly commended. More than 125 growers were reached in a series of seven meetings held last fall. Steiner was one of the first to adopt the plan.



The fruit is carefully wrapped and packed. Quarter and half boxes, as well as full size containers, are sold.

This grower's success in producing consistently high yields of quality fruit is attributed in no small measure to the liberal application of barnyard manure during the dormant season. Deep ditches are plowed a short distance from the rows and the manure covered therein, care being taken to get it below the depth reached by cultivating implements. Manuring is done on one side of each row in alternate years.

That the hungry trees make good use of the plant food thus provided is indicated by digging into the trenches, where a mass of feeder roots may be found.

"PLENTY OF WATER."

Sufficient irrigating water, applied at the right time as indicated by soil condition, is regarded by the Brawley grapefruit specialist as one of the most important considerations. "Don't wait until the trees show the need of water; then it may be too late. Bore holes and watch your soil," warns Steiner. Weekly irrigation with small streams, flowing slowly, is recommended during the summer. On account of the silt carried by the Colorado river water used in the Valley, a heavy flow is deemed inadvisable.

The older orchard is set 20x24 feet, but this is too crowded for best results. In the owner's estimation. He now recommends planting 30x28 or at the very least, 28x28. "The trees will make much more growth the first 10 years if not crowded," Steiner points out.

He has experimented some in intercropping young orchards, achieving good success with alfalfa, which can be planted in comparatively narrow strips and handled without injury to the trees. Then, when it is plowed under after two or three years, the soil is benefited.

Marsh Seedless trees (Steiner's are of this variety) produce a fair crop in the third year in Imperial Valley, and trees not yet two years from planting often bear 10 to 30 fruits. Ellis estimates the county now has only about 300 acres in bearing, but has planted approximately 1500 acres more.

"We estimate we shall have 75 cars this season, which represents an increase of 25 cars over the 1922-23 season," Ellis points out, "and we may now look for a steady increase from year to year. The feeling is growing that we must develop new markets and all get together on some definite advertising and marketing program. The principal growers believe there is nothing to fear from heavier production if it is anticipated in advance."

At present the bulk of the valley crop is marketed under two brands: the "Barbara Worth," handled through the California Fruit Growers' Exchange, and the "Valley Queen," which is distributed by the Imperial Valley Citrus Association. A few growers, including Steiner, market independently.

Eight-year-old trees in Steiner's orchard. Handsome gentleman in foreground is Ray Ellis, Assistant Farm Adviser.

"If all the growers will get together in one organization and open up new markets by making up cars to be shipped to different points, I will be with them," he explained. "I think we should send a car to each of several selected cities and have a representative there to put on a sales and advertising campaign. In fact, I shipped one car East on my own accord, with very good results."

ANTS SERIOUS PEST

Spraying and fumigation are unknown to Imperial Valley grapefruit growers. One serious pest, however, is the "fire ant," a small red insect which attacks the young trees during the summer months. Irrigation causes a heavy flow of sap which at night frequently oozes through the bark, attracting the ants. In eating the sap they frequently injure the bark. Yucca shields are said to protect the ants as well as the trees; therefore, frequent inspection and whitewashing are recommended.

It will be seen that getting a new orchard established in the Imperial Valley is not the simplest thing in the world. Yet it is essential that the trees be well started before the summer heat becomes severe.

One great advantage is the comparatively low price of raw land. Starting with acreage at, say $250 the prospective orchardist must spend from $10 to $30 ((or more if the land is very rough) for leveling. The trees, at present prices, will cost $100 an acre, and digging the holes and planting will add another $5 at least.

Ellis recommends the planting of alfalfa, not only for the possible cash returns from four or five cuttings of hay the first and second seasons, but also because it tends to hold down the temperature and reduce evaporation.

The second year it is considered advisable to plow two or three furrows from either side of the alfalfa strip, to facilitate proper care of the trees.

ALFALFA PLANTED FIRST

One good method in planting new land is to sow the alfalfa in the fall and set the trees in the spring. A six-foot strip may be plowed for each row.

Inter-crops of various kinds have been grown with success in the valley. A number of orchardists have made money with garden peas. One producer cashed in on his crop of peas at the rate of $25 a day for a time, reaching a 16-cent market. When the market declined and frost interfered, however, he simply allowed the vines to make heavy tops and plowed them under as a cover crop. These peas were planted in October and were ready for market in January.

Grapefruit appears to offer more attractive opportunities than any other special industry in the Imperial Valley. Many who have observed the development of this district for the past ten years believe it will consist eventually of just such farms as Steiner's, devoted to intensive production of the specialties to which the soil and climate are best adapted.

In addition to his orchards, Steiner has nearly 35 acres of grapes, Thompsons and Malagas, which—reaching the June and July table market—have yielded $220 per acre gross in the most unsatisfactory year, when growers in other parts of the State lost money.

An apricot orchard, consisting of Newcastles and Blenheims, on Steiner's place is being *(Continued on Page 9)*

All young trees were protected during the winter, as shown above. Hand indicates wire "tie" around cornstalk. Note heavy stake.

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
MARCH 23, 1924

What Conditions Are Best for the Cow on Test?

By G. M. DRUMM
Dairy Department, University of California, Davis

Giving the Cow a "Look In"

GRANTING that the "boarder" cow is a parasite and should be eliminated, it is equally important that the big producer be given due credit for her performance. Official testing eliminates all doubt, but like other agricultural operations, it may be done either correctly or incorrectly. Cow testing has both its uses and abuses. Mr. Drumm's article should help to clear up doubt and misunderstanding.—*The Editor.*

THE old saying credited to Darwin, "The eye of the master fattens his cattle," is a wise one. Unfortunately there is no cut-and-dried system of feeding dairy cows; each is a law unto herself.

There are almost as many systems of feeding test cows as there are caretakers. Not only must heavy production be considered, but also economy and the health of the animals.

Certain definite rules, however, have been developed by investigators in animal nutrition, and in a later article the writer will discuss the feeding problem in some detail. But feeding is not the only important consideration in handling test cows. The other factors, as well as this one, call for the application of common sense.

To some observers only slightly acquainted with testing work, the making of phenomenal records appears to be due to the use of a secret grain mixture or a drug for stimulating production, or to something equally mysterious.

From what I have been able to learn from experience and observation, however, these things really have very little if anything to do with the outstanding records. Those who will not answer the summons of an alarm clock regularly three or four times a day and make the cows comfortable at all times never will attain the greatest success at the game, but those who do this will be surprised at the simplicity of the work.

As in feeding, it is difficult to lay down any definite set of rules that will apply to every animal, but we should all recognize the same basic rules of nutrition and care.

It has been quite a common practice to keep test cows in individual, well-bedded box stalls, allowing each the run of a small pen or turning them all together in a larger lot for exercise. This is an excellent way to keep them comfortable and quiet and to get the highest production, but it is quite expensive, due to the barn space, bedding and labor required.

At the present time it is necessary to cut corners whenever possible in order to make the business pay. With straw at the present price, it costs about a dollar a day to bed down a string of six to eight cows in box stalls. An attendant milking four times a day can care for about two additional animals if they are handled in stanchions rather than in pens. These items amount to considerable during the year.

At the University Farm at Davis the test animals were removed from the box stalls and milked in the stanchions of the regular milking barn. They are fed grain, beet pulp, green feed and silage while being milked and then turned under a shelter shed, where a manger is kept for the alfalfa hay. The production has remained quite uniform under the two methods of handling. The added advantage also is obtained of being able to wash the udders more easily and to obtain milk with low bacteria count.

Although pasture cannot be depended upon to supply any appreciable proportion of the test cow's ration, a moderate amount is very desirable for maintaining good health. There is something about pasture — perhaps mainly due to the vitamines that aid in the assimilation of mineral matter —which makes it of very great assistance in the maintenance of good health. "Shy breeders" are not so common in herds that are pastured part of the year. But cows being forced at their maximum production cannot spare the energy or capacity for very many hours of pasture each day; about two or three hours seems to be enough. The amount of exercise obtained in that length of time is stimulating to production.

Although good records have been made by cows freshening at all times of the year, there is little doubt but what the time of calving has considerable to do with the record. The United States Department of Agriculture examined a large number of cow-testing association records to learn the effect of season on production. The accompanying table gives a summary of the results:

FROM 11,130 INDIVIDUAL 12-MONTHS RECORDS

Season of freshening.	Pounds of butterfat.	Pounds of milk.
Spring	236	5775
Summer	234	5863
Autumn	267	6591
Winter	254	6338

It can be seen from the table that the tests started in the autumn were over 12 per cent greater than those beginning in the summer.

Although it would not be best to leave animals open for any considerable length of time in order to have them calve in the fall, often a little manipulation of the time can be made to advantage, especially with first calf heifers.

It is much easier to get cows in calf if they are not kept open for more than three or four months and then if they do not conceive they must be run for a 365-day test, which is probably just as well. (*Continued on Page 7*)

Such equipment as this, while very desirable, is not necessary for ordinary testing.

Suggestions for Increasing This Year's Fruit Profits

Cost of Production in Relation to Profits—The Marketing Situation Reviewed and Analyzed

By F. W. ALLEN
Assistant Professor of Pomology, University of California

(Editor's Note—The following is the second article on this subject by Prof. Allen, the first having appeared in the March 16 issue.)

THE possible net returns of quality fruit multiplied by quantity production depend not entirely upon a high sale price, but to a very great extent upon the unit cost of production.

War prices for fruit no longer exist, and while it is to be hoped, and perhaps expected, that some outlets for California fruit will be more satisfactory during the coming year than the past season high prices are not anticipated. The grower, therefore, who intends to make money in the immediate future is he who can produce a high quality crop at the least cost.

Despite the fact that the grower may contend the price which he receives for his fruit should be based on the cost of production actual experience shows that prices for such a commodity as fruit are fixed largely by supply and demand.

It is not the purpose of this article to endeavor to list the various items entering into the cost of production, but only to mention by way of suggestion a few of the larger influencing factors. First of all should come the price of land and the tonnage it will produce. Good orchard land commands a higher price per acre than poor land. This is only just and [illegible] from an acre of [illegible] is worth more, or should be [illegible] than the crop from an [illegible]

There is, however, a limit in price of orchard lands beyond which one cannot safely go. The limit may be $1000 per acre; it may be $200 per acre. Aside from one's personal choice of location and social advantages this will depend upon what the land will produce. The $1000 an acre land may be relatively cheap, but it must produce a much greater tonnage per acre in order to be as valuable as the $200 land.

Unless yields are high, taxes and interest on the investment will bring the cost of production beyond what may be reasonably expected for the crop. Conversely one having an orchard on land purchased at a low figure can well afford to sacrifice something in the way of yields, but every additional box of fruit harvested reduces the unit cost and swells the net profits.

The general character and topography of the soil are factors of no small importance. Heavy soils especially those requiring subsoiling for successful tree growth, are more expensive to handle than a friable, sandy loam. Likewise cultivation, irrigation, spraying and harvesting are all more costly on hilly land than where the surface is level or gently undulating. This increase in cost must be apportioned and added to the cost of each box of fruit produced.

Is the size of the orchard of any consequence in determining cost of production? It is generally recognized that it is: not only that fruit may be produced at less cost in very large orchards where modern tools are used and the work usually well systematized, but that there are also economical acreages which one or two men can handle most successfully.

A one-man orchard should be large enough to require the grower's time the greater part of the year. During certain rush seasons, when spraying, thinning and harvesting, he will for short periods need extra help. If however, the acreage is such that additional help is needed for six months out of the year with nothing to justify keeping a helper the other six months, the area might be said to be uneconomical.

Sufficient acreage to justify a man employed by the year would be a more efficient investment. What is true with labor applies also to equipment. The size of the orchard should be adapted to the use of either one or two tractors, one, or two teams, spray outfits, etc., rather than a size a little too great for one outfit but not large enough to justify the purchase of a second."

Instances are often seen where the orchardist tries to cut expenses by purchasing or using poor or worn out equipment; also by not spraying or giving his trees good care in years when a light crop is produced or prices are exceedingly low. Poor or cheap equipment usually is the most costly, nearly always breaking just at the wrong time. Spray outfits seem often to have a habit of going on a strike just when the time for putting on the spray is limited.

Good equipment—well cared for—will prove most economical. The degree of neglect which an orchard may suffer during any one year without suffering material injury, cannot be stated. When it is imperative that operating expenses must be cut the judgment of the grower as to what can best be eliminated will have to prevail. The future, however, should always be considered, as any short-sighted policy is sure to prove a false economy. The expenses necessary the following year may be twice as great, and the results less satisfactory.

Spraying is a costly orchard operation and one wishes to do the minimum amount of it, consistent with the production of clean fruit. It would seem self-evident that apples or pears could be raised cheaper where the codling moth can be held in control by two or three sprays than in a district where climatic conditions make eight and ten applications necessary. With the pear the dreaded blight is also more costly to (*Continued on Page 10*)

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TO SERVE—All those who, for pleasure or profit engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY
By THE EDITOR

WILL Emitation of production improve the position of the farmer? This interesting question, discussed by Ray Gruhlke in a recent number of Orchard and Farm, brought forth many arguments, pro and con, from our readers.

While space will not be available to publish these many communications in their entirety, we hope soon to print extracts from them. Your editor is always pleased to have the opinions of readers on timely agricultural subjects, and thus to keep more closely in touch with the farmers' viewpoint.

CONTEST COMES TO CLOSE

The contest on "Agricultural Problems of the Future" also brought a veritable deluge of letters which now are in the hands of a committee of judges, whose names will be announced when the prizes are awarded.

Many helpful and thoughtful suggestions were received, and a number of valuable ideas will be presented when the winning letters are published.

Owing to the enormous circulation of Orchard and Farm, and its distribution with the country and suburban editions of two great newspapers, 500 miles apart, it is necessary to go to press far in advance of the date of publication. For this reason there will be some delay in announcing the contest winners. Please be patient, folks, and it will not be long until we shall know who is "in the money."

SUGGESTIONS CONCERNING "NEWS"

A subscriber writes asking why we do not publish more farm news and gently taking us to task for omitting the announcement of an important meeting of his organization.

We explained to him that the very conditions outlined above make it essential that any such announcements be in our hands from 15 to 20 days in advance of date of publication. We are always glad to co-operate with the officials of various farm organizations in giving publicity to their meetings—if we are notified in time!

GET AD COPY IN EARLY

The same thing applies to copy for advertisements. Some of our valued clients have been disappointed when their "ads" did not appear in the first issue following receipt of their instructions. In order to be sure of good position and prompt publication, be sure to send your classified or display ad to Orchard and Farm so that it will reach us at least 15 days before date of publication.

BIG CIRCULATION; BIG RESULTS

By the way, we cannot refrain from mentioning the amazing results reported by Orchard and Farm advertisers. Many have been astonished by the service rendered by this little magazine.

The head of one of the largest hatcheries in California recently wrote to our Advertising Manager, "Our classified advertising in Orchard and Farm brought us more business than our large display ads in all other farm journals put together, while one large user of display space said "Orchard and Farm gives 100 per cent better results than any other farm paper we have used."

WHAT'S NEW? Keeping Abreast of Agricultural Progress

Poultry Remedies Investigated

AT THE request of Petaluma poultrymen, the State Department of Agriculture recently tested a number of insecticides and remedies being sold in that district. As a result of this investigation several violations of the California Economic Poison Law were detected. One manufacturer was fined $50 for failure properly to label his product; court action is being instituted against others.

Freezing Pomegranate Juice

THE concentration of pomegranate juice to make a syrup heretofore has presented a serious problem, due to the destruction of flavor resulting from boiling. Recent experiments, however, have shown the feasibility of freezing to remove the water. The Lindsay Farm Bureau Fruit Association has been co-operating with Professor Irish of the Fruit Products Laboratory, University of California, in manufacturing sample lots of syrup. It is hoped by this means to widen the market for this fruit.

Clean Grain Seed Urged

A GREAT campaign is now under way in the grain districts of the Northwest to demonstrate the advantages of cleaning seed wheat. Not only is a better price received for clean grain, but the yield per acre is increased and there is less spreading of weed seeds as well. In some districts the average foreign material in grain has been as high as 18 per cent, according to Government officials. In one State the farmers are said to have delivered to elevators nearly 12,000,000 bushels of dockage (foreign matter) in their wheat, or the equivalent of 13,980 carloads. The cost of handling this material represented almost complete loss.

Coyotes Eat Melons, Grapes

WHILE most readers think of coyote depredations in terms of poultry and lambs, it is known that they frequently do serious damage to vineyards, orchards and melon fields.

In one instance in the Morino Valley (Riverside County) these "varmints" are said to have cleaned up an entire crop of melons. Coyotes have been known to take practically every bunch of grapes in a small vineyard, according to Director Hecke of the State Department of Agriculture, and in addition will eat figs, prunes and a variety of other fruits. County and State authorities are planning new campaigns of destruction against these crafty thieves.

Duroc-Jersey Sows Sell Well

TWENTY-FIVE bred Duroc-Jersey sows sold for an average of $57 at the recent annual sale of the California Duroc-Jersey Association. Buyers were well pleased with the quality of the offering and consignors were satisfied with the prices received, according to E. H. Hughes, secretary of the organization.

The top sow was raised by J. E. Thorpe of Lockeford (San Joaquin County) and brought $187. The senior gilt consigned by the University Farm was sold for $130 to Bob Jones of Santa Cruz.

Several of the purchasers are new breeders, which was considered a favorable feature of the sale.

This Farmer Uses Oxen

TWELVE oxen constitute the principal power unit on the E. M. Simpson farm near Hood, according to Harold Ellis of Sacramento, who recently visited the owner. "Eleven steers and a bull make up the team used for plowing, subsoiling and other heavy field work," relates Ellis. "The six yokes are strung out without a line, managed entirely by the driver's voice. They pull four 10-inch plow bottoms and can turn over close to nine acres a day. They are maintained not as a curiosity, but because the owner believes they are the most economical source of farm power. They mostly represent a Holstein-Hereford cross."

Popularizing Reindeer Meat

MORE than 1400 reindeer carcasses were shipped from Alaska to the United States during the past year, according to the Biological Survey. Most of the meat was consumed in Washington, Oregon and northern California, although some was reshipped greater distances. One method followed was to pack the carcasses, frozen solid, with the hides on.

Reindeer meat is said to be fine-grained, juicy and palatable, comparing favorably with beef. Most of the meat was from steers, butchered at about three years of age. The dressed weight averaged 150 pounds. By crossing with caribou and following a process of selective breeding, it is expected greatly to increase the weight of these useful animals.

It is now about 30 years since the first importation of reindeer into Alaska from eastern Siberia, and it is estimated there are now about 250,000 of these animals in the Territory. Reindeer grazing is expected to become one of the principal industries of Alaska.

Enormous Milk Increase

A REMARKABLE example of increased production following adoption of improved dairy methods is cited by the United States Department of Agriculture. In one county of an Eastern State the total milk yield was increased 1,800,000 gallons in five years without increasing the number of cows. This was accomplished by testing, the introduction of more purebreds, encouragement of boys' and girls' club work, better feeding, and tuberculosis eradication. School club members have produced one-fifth of the purebred stock now owned in this county!

Lining Irrigation Ditches

LINING irrigation ditches with cement is the latest factor in the water conservation and drainage program of the San Joaquin Valley.

According to Verne Scoggins, Stockton agricultural expert who recently investigated the situation, a saving of at least 70,000-acre feet of water will result from the work now in progress in the South San Joaquin Irrigation District. In all some 50 miles of ditch will be treated in this one district, at a cost of more than one-half million dollars.

Wallace Protests Increase

SECRETARY OF AGRICULTURE WALLACE has protested vigorously in an open letter to Alfred G. Smith, President of the American Steamship Owners' Association, against proposed increases in ocean transport rates on livestock products. "At the present time" the Secretary points out, "Americans not only cannot stand any increase whatsoever for transporting any agricultural products on land or sea, but they cannot even afford to pay the rates now in force." Mr. Wallace shows that any increase in charges for hauling packing house products is sure to be reflected in the market value of farm animals, and furthermore may so curtail shipments as to offset any gain the carriers might anticipate from higher rates.

Chicks Require Room

A POULTRY project carried on by the Agricultural Extension Service of Los Angeles County indicates that the amount of floor space allowed chickens has a direct bearing on the percentage of mortality. These investigations were carried on with 38 different poultrymen, breeding chicks in 49 different units. A total of 45,619 chicks were under observation.

Several types of brooders were studied and the fact that surprised many of the poultrymen was that very little difference was noted in the percentage of mortality with the different types of fuel used.

The average space per hundred chicks was 32 square feet, with variations of from 22 to 65 square feet per hundred. It is interesting to note that in all cases where there was a high mortality the chicks were allowed less than the average of 32 square feet per hundred, while in all cases where the mortality was low the chicks were allowed a greater amount.

Ben Gonnadoit Says

I SEE where th' editor invites ever'body t' express their views concernin' Ray Gruhlke's article on cuttin' production t' hoost prices what was puhlished sever'l weeks ago. Well, Mister Ed., I think it is th' bunk.

The plain fact is, they ain't NO method o' beatin' this farmin' game. I used t' waste a lot o' thought an' hard work on it, but I never made no money when I was really tryin'. On t'other hand, I ain't lost no more money since I quit tryin' than I did before. So there you are!

Now I take things as they come, an' if they don't come, I don't worry, 'cause I figger it ain't no use anyway. If a feller hopes t' make money, he's only that much more disappointed when he don't, so I won't entertain no hope! I figger th' world owes me a livin' an' I ain't gonna strain myself a'gettin' it!

Here is us taxpayers supportin' farm advisers who is all th' time figurin' out plans that makes more work! Only thing our farm adviser ever done for me was t' persuade me t' plow my grain field deep. Result was I plowed up an old hox o' silver somebody'd hurled there, th' whitch I sold fer $200, so I didn't plant no grain atall, figurin' that was more 'n I would a' made f'm the barley.

Oh, yes, an' I forgot one other thing! One time when I was away fishin' the farm bureau fellers talked my wife int' payin' $5 dues. All she got t' show fer it was a metal sign, th' whitch kicked around th' place for six months 'til one time I used it t' patch a hole in the roof o' th' house. Pretty expensive shingle, I'll tell th' world!

BEN GONNADOIT

Home Tanning of Rabbit Skins

By ELLEN S. GREEN

RABBIT HIDES are at their very best at this particular season. It is important to take care of the raw hide as soon as it is removed from the animal. It should be stretched at once and either drawn over a sleeve-shaped board or opened up and tacked on a board.

Always open the hide on the under, never on the upper part, as it is the back which is used exclusively in the making up of the better class of garments. If any folds are made, that part of your hide will be ruined. If flies are permitted to get to the raw hides, that will spell ruin, too.

If you have no convenient place to store your skins while they are drying, rub equal parts of salt and alum thoroughly all over the raw side of the hide, especially the dewlap—the heavy bag which forms under the chin of a mature rabbit.

VALUE OF DEWLAP

The dewlap is a very useful part of a rabbit hide. It holds a unique place in the manufacture of fur garments, as it makes a most wonderful "button." Pick up any rabbit in your yard and examine the dewlap. You will find the fur grows in all directions from the center. You can imagine the splendid way in which a dewlap will adapt itself to the manufacture of a nice, fluffy button.

In a former number of ORCHARD and FARM I gave a good tanning solution, but for the benefit of readers who, for any cause, missed reading it, I will repeat the formula.

Put one gallon of water into a crock and add one quart of salt and one ounce of sulphuric acid (commercial strength). Be sure to impress the fact upon the salesman that you want sulphuric acid only commercial strength, for that is of the utmost importance.

Wash the hides real well with plenty of nice, soft, soapy water after getting as much of the grease as possible out of the hides before wetting. Rinse thoroughly and put into tanning solution.

The skins may remain in this solution for several weeks—at least three. You can tell by stretching a hide over the hand if it is ready to take out. If the skin is sufficiently tanned it will pull white and will have lost the raw appearance.

When you decide the tanning process is completed, take the hides out of the solution and again wash them very thoroughly. Hang them in the shade, or somewhere else where they will dry slowly. As the skins begin to dry they must be rubbed, beaten and manipulated. Remember, the more the skin is handled at this time the softer and better the finished article will be.

Here is a quicker way to tan hides, and just as good: Mix one tablespoon of salt with one tablespoon of bran and make a paste with a very little warm water. Rub this into the hide, being very careful that every part of the skin gets attention. Now roll the skin up and wrap an old newspaper tightly around it and put it away for twenty-four hours. Then take out and shake thoroughly. Rub and work the hide in the same way as given in the first method. The more you manipulate any skin the softer and better it will be.

WORK QUICKLY DONE

One great advantage of this second method is the quickness with which it puts a skin in usable condition. Once I myself tanned a skin, made it up into a choker and sold it—all in three days.

Most women think it is very difficult to clean a fur, especially a white one. I can assure you this is not true. Take a pan of gasoline and sponge the fur well. Don't be afraid of using too much gasoline. Now rub cornmeal into the garment—rub and rub. I generally use a small nail brush for this purpose.

After you have worked the garment until you consider it clean, roll it up and leave for an hour or so. Then shake as much of the cornmeal as you can out of the garment and hang it in the air to dry. As the fur dries, shake and beat it with a flat stick or the hands and by the time all the gasoline has evaporated the garment will look like new.

Don't be discouraged if the garment which you are cleaning at first looks like a nasty mess. It surely will look [illegible] until the gasoline begins to dry out of it but it will be all right in a couple of days at most.

A question I am often asked is: How long [illegible] be kept before it is [illegible]. If a skin is properly dried it [illegible] away for weeks, even [illegible] has been properly [illegible] it would be a [illegible] buffalo bugs, which sometimes will get into an untanned hide. These little insects are something like a small beetle and if they once take possession of a hide, they will destroy it in short order. I always keep napthalene flakes with any untanned skins I may have lying around, but even then they need watching.

Another thing to remember is to examine the hides well before you go to the trouble of tanning them. A skin which is shedding its fur is of no earthly use to put into a garment, but can be used in making a mat. I have a very pretty white mat in the bathroom which is much admired. It was made of skins which I found were shedding and no use whatever for garments, but just splendid for mats.

USING THE WASTE

When I make an auto robe, there is always a little waste felt which comes off the sides. These I cut into strips and sew with the sewing machine onto clean sacks, to form an edge to a rug.

Cut skins into squares, sew together, mount on the foundation you have made and your rug is a finished article.

Another good use for imperfect skins is to make them up into slippers. Use the soles one can buy at any department store. Shape the toe out of the fur and sew on a deep band to form the uppers. A child's pair of slippers may be made out of white fur, with shoe buttons sewed into the toes to form eyes.

Ridding Bees of Foul-Brood

By J. D. BIXBY, Sr.

AMERICAN foul-brood is the most destructive and persistent disease of bees with which we have to contend. The usual method of treating it is to shake or brush the bees into a clean hive fitted with starters of comb-foundation in the frames, forcing the bees to consume all contaminated honey they may have carried with them in the building of new comb. This can be done only when some honey is coming in from the fields, or under a process of feeding.

The following very simple method of treatment may be followed during the nongathering season:

Select three or four combs of sealed honey, as completely filled as possible, taken from a healthy colony, and an empty comb. Place them in a clean hive, wrapping the dry comb in several thicknesses of newspaper in order that it will fit the hive closely and act as a division board.

Now brush—not shake—the bees from the diseased combs into the new hive. Close the entrance down very small and if there is a sufficient force of bees they will need no further attention for several weeks.

Please note this "if." It is very important, because a new broodnest must be formed in the center of one of these full combs of honey by the removal of the honey to empty cells on the borders of the comb. The queen then deposits eggs in these vacated cells and these must be kept at a temperature of 98 degrees for 21 days to hatch into mature bees. All this requires a large number of bees, as only volume will generate sufficient heat.

Meanwhile, the normal processes of hive must be kept up, cells emptied and polished for the queen to lay in, water carried to dissolve thick or candied honey, propolis gathered to stop up all cracks too small to crawl through, and—most important of all—pollen gathered to make larval food. There will be no brood raised without plenty of pollen.

All these processes require bees, and their more-than-normal activity wears them out very rapidly. Therefore, before the young bees begin to emerge your working force may be greatly reduced.

Failure to consider these facts is the main cause of failure in such operations as requeening, making nuclei and shaking for disease. Do not attempt any such work unless your colony has at least a pound of bees—4000 to 5000. If it has less unite another weak colony with it—or several, if necessary.

I once united the bees of 14 small, diseased colonies to make one strong, healthy one. It paid. Divided, they would all have been dead in a month; united, under a good queen mother, they make 50 pounds of comb honey and nearly as much late extracted honey. Besides, I had a fine colony for winter.

In the method outlined above, any infected honey carried in the honey-sacks of the bees will be consumed by them long before it would be needed to feed brood, as it requires several days for the colony to adjust itself to the changed condition and prepare the new broodnest. For this reason it is important to have the combs of honey as fully sealed over as possible.

New Puncture-Proof TUBE
—a Proved Success

A new Puncture Proof inner tube has been invented by Mr. Milburn of the Milburn Puncture Proof Tube Company, Chicago. In actual test it was punctured with 500 nail holes without the LOSS OF AIR. This amazing new inner tube increases mileage from 10,000 to 12,000 miles; eliminates changing tires and makes riding a real pleasure. It's a PROVED success. Many users have run over 20,000 miles without removing a tire from the wheels.

These wonderful, no-trouble, puncture proof inner tubes cost no more than ordinary tubes and Mr. Milburn wants agents everywhere to help him introduce them.

Car Owners Wanted

—to demonstrate and take orders for this wonder tube. Interests everyone immediately. Automobile owners buy on sight. It makes no difference what car they drive or what tires they use. Our salesmen are coining money on our "DIRECT FROM FACTORY" scheme of selling. Absolutely no competition. We control all basic patents. No capital required to start. Previous selling experience not necessary.

Earn $5,000 to $10,000 a Year

Earn $5,000 to $10,000 yearly or more. Get into business for yourself. Sell Milburn Puncture Proof Inner Tubes. Every car owner is a prospect. Your field is unlimited. Get in while it is good. Be independent. Find out all about it now and get started at once. Then you will be ready to make big money when the heavy spring selling season starts.

Read what these men say:

J. D. Cooper—"I have made 30,000 miles with my Milburn Puncture Proof Tubes and have not as yet removed a rim or casing and my casings are in excellent condition."

J. C. Jervee—"I sold 50 Milburn Tubes in the first three days."

Chas. Cayton—"I sold twelve tubes yesterday in 10 minutes."

L. S. Knapp—"My first few hours out I sold eight tubes, no trouble at all to sell them. The most wonderful tube on the market today, I think. I am [illegible] you will give me the agency for a big territory."

D. Edalere—"I have driven seventy [illegible] nails in one of the [illegible] 3 tubes and twenty were [illegible] nails. It has gone above [illegible] that you recommended to me it would do."

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Send coupon or write today for special free tube offer and further details. References: Industrial State Bank of Chicago, National Bank of the Republic, Chicago, Baker State Bank of Chicago. Don't hesitate. Fill out the coupon and send it in or write and send name and we will send you all details.

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D. P. MILBURN, Pres.: If the money-making opportunity is as big as you claim, I am interested in getting the facts, so that I can get a share of the profits selling Milburn Puncture Proof Tubes. Without obligation send me information about commission and FREE TUBE OFFER TO AGENTS.

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State..

Success in Growing Vegetables

By R. G. RISSER
California Vegetable Union

R. G. RISSER

As a rule, the man who has made an outstanding success of growing vegetables commercially is one who plans his work well in advance, performs each operation promptly and gives the entire enterprise careful supervision, staying close to the job, at least during critical times. He is intensely interested in his work and gives it very thoughtful attention. He is a good observer and makes a field study of his crops. His application to business and expeditious conduct of the work are chief factors in his success.

In a nutshell, the most important thing connected with the production of vegetables consists in providing and maintaining the conditions requisite for normal, vigorous and continuous growth.

Steady, uninterrupted development of the plant is essential. A check in advancement, an injury to the crop, or a shock to the young plant may upset normal, healthy progress and make a radical change in the life process, which will prove fatal to crop production. Thus, a check in the growth of lettuce, cabbage, onions or celery may cause the plant to go to seed when it should be developing a marketable product.

A shock to cauliflower may cause it to flower prematurely or "button" while still quite small. Discontinuous growth of potatoes may make "knobs," a form of second growth, or growth cracks. Such an interruption may produce "puffy" or deformed tomatoes and various kinds of culls, including splits and doubles, while onions may develop seed stems and bottle necks.

Where there is no severe shock, small sizes, light yields, poor quality and sometimes diseased products, may result from temporary unfavorable conditions. Blossom end rot of tomatoes or heart rot of celery may follow extreme dryness, for instance. As a general thing plants also are more susceptible to other forms of disease damage if they have not been making a steady, vigorous growth.

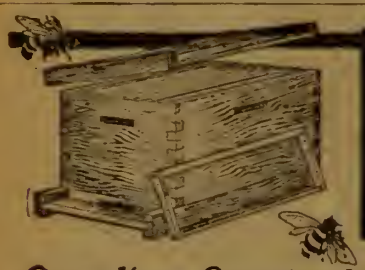
It is not always possible to promote even and constant growth in vegetables, as conditions beyond our control sometimes interfere, yet some of the losses may be attributed to delay or neglect. Perhaps the most frequent cause of these troubles is lack of moisture at some period and possibly the most critical stage in the life of the plant. Intermittent irrigation or irrigations at too great intervals, are very dangerous. The plant should have adequate moisture at all times.

To make sure that this moisture is always available within reach of the feeding roots, examine the soil frequently. A soil auger may be necessary for orchards, but with the more shallow-rooted vegetable plants a shovel will do. Satisfy yourself that the soil in all parts of the field and throughout the season contains ample moisture.

Of course, it would be possible to name many factors such as seed, soil, climate and location—with reference to packing and shipping points, all of which contribute to the success or failure of the venture; but the personal watchfulness and quick response of the executive in charge of operations are perhaps the things which count most—after a wise selection of the land and seed has been made.

Forehanded preparations for each piece of work, timely planting and constant follow-up work to see that the crop does not suffer at any time, all are important. More failures have been made by lack of attention to some detail or to getting behind with the work than to almost anything else.

The inexperienced grower should, therefore, plan to be on the lookout for possible signs that the crop is not doing well and should aim to prevent all damage before it is too late. This will usually be possible if he is right up on schedule with each operation and is on the ground, anticipating unfavorable developments.



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5 for $10.95
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Ward's are standard hives, made of clear western pine, thoroughly kiln-dried, no knots. Made especially for us by one of the largest and best known manufacturers in the country. All parts accurately machined and close-fitting. Why pay more? Order your new hives direct from this advertisement. Catalogue number 187M5681—eight frame hives—price five for $10.95. Shipping weight 130 pounds.

We can start you in Bee-keeping

These hives are typical of Ward's Bee-Keepers' Supplies—low-priced but standard, serviceable supplies of every kind. We sell pure bred Italian Bees and Queens. Send for our General Catalogue No. 100 which shows our complete line of hives, sections, foundation, smokers, honey extractors, feeders—in fact, everything for amateur or professional bee keepers. Write to Dept. B-26

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Write for General Catalogue showing all standard Supplies for Bee Keepers at lowest prices.

Many Barren or Aborting Cows Can Be Saved

Don't be too quick to call in the butcher. Often a valuable cow is barren or abortive simply because her genital and digestive organs are in a sluggish condition and fail to function until strengthened through medicinal aid.

Kow-Kare is used successfully in thousands of cases every year where nearly all hope of a cow's future usefulness is abandoned. This cow medicine tones up and strengthens the vital functions of sick and unproductive cows. It helps nature in the processes of production and reproduction. Every mail brings us letters such as these, from enthusiastic users:

H. V. Whitmore, Thurmont, Md. writes: "We have been feeding your Kow-Kare for about three months with very good results. We haven't had one to abort since we began feeding it. We lost about one-half of the calves in the last two years."

Amos B. Miller, Mechanics Grove, Pa. says: "My cows had been aborting, as many as 75 per cent. some years. After using Kow-Kare for a short time only one or two aborted, and after continuing it for some time have had no trouble. It has also improved the general condition of my cows and increased the quantity of milk."

John Watt, Freeport, O. writes: "I have a choice Jersey cow. Heretofore I have had bother to get her with calf. Hearing of Kow-Kare for barrenness, I got a can and gave her two or three doses. Brought her in all right. After using it the first time she was mated she got with calf, and came around all right after she had her calf."

Some of the heaviest losses in the dairy can be avoided or corrected by the judicious use of this famous cow remedy.

If you are not using Kow-Kare now, ask your feed dealer, general store or druggist about it. Large size package, $1.25; medium size 65c. If your dealer is not supplied, order direct. We pay postage.

Our valuable free book, "The Home Cow Doctor", tells how to use Kow-Kare in treating Barrenness, Abortion, Retained Afterbirth, Scours, Bunches, Milk Fever, Lost Appetite and as a general conditioner in increasing milk yield. Write us for this book.

DAIRY ASSOCIATION CO., INC.
Lyndonville, Vt.

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Horticultural Cleanup Campaign Needed

DR. ETHAN H. SMITH, prominent San Francisco physician, contributes the following description of conditions in a typical small California city, with regard to trees and plants and the need of more intelligent planting and better care—enforced by law, if necessary.

Dr. Smith was raised on a Michigan farm and has never lost his interest in agriculture. His studies in bacteriology opened the way for him to keep in touch with the latest developments in the use of fertilizers and the treatment of plant pests and diseases.

"One great source of plant diseases and injurious insects," writes Dr. Smith, "is the vast number of ornamental trees, shrubs and shade trees and plants in our villages and towns. But few of these trees and plants are ever sprayed, many seldom or never pruned. They are more often than otherwise planted without knowledge or intelligence as to their being a benefit or becoming a nuisance.

"In my home town we have a 'tree committee' composed of three most estimable women of unquestioned moral and social standing. They are averse to having almost any sort of tree removed, even though it be laden with insect pests, and fungus disease.

"Their lack of horticultural knowledge means chaos and dissatisfaction in the matter of shade trees.

"To begin with: Our streets are not properly planned for any sort of shade trees. Cement curbing has been laid down without correcting this error. The curbing has been replaced where it was placed in pioneer days, instead of extending it out five or six feet beyond that line. This would allow ample space for trees, which would not disturb either sidewalk or curbing.

"It also would place the trees where they would not interfere with electric light and telephone wires. The entire space for traffic could then be paved, without prohibitive cost, instead of a ragged-edged 20-foot strip in the middle of the street.

"Our little city has a multitude of cork elms in its streets. These trees send up sprouts for from 50 to 100 feet in every unpaved direction. They fill the sewers with roots and break the sidewalks and curbing, because of the very inadequate space in which they are planted. These trees are frequently loaded with 'San Jose scale.' In some localities insects breed in the leaves by the billion.

"We also have a lot of silver leaf poplars often badly infested with brown caterpillars. These trees are filthy for six or eight weeks each spring. They are ill-shaped, short-lived and full of dead and decaying branches.

"We have a host of half-dead and badly mutilated trees also. Our lots and gardens are full of plants and shrubs, most of them badly infested with various pests and but few of them sprayed or dusted, or destroyed where destruction is the only remedy.

"I called the attention of the State Horticultural Commissioner to this condition of the trees and plants of the small cities and towns. My reply was a reference to some very excellent men who would tell me how to spray and perform other horticultural processes.

"I have been familiar with spraying, cultivating and all other kinds of work connected with the care of fruits and flowers for more than forty years. However, I have not the authority to compel careless people to clean their plants and trees.

"If our State Horticultural Commission has such authority and blandly ignores responsibility, it seems as though we ought to have some law about it."

Redwoods League Saves Several Groves

TWO splendid tracts of redwood timber have been saved, and funds established for the purchase of three more during the year 1923, according to the annual report of the Save the Redwoods League. The Humboldt Pioneer Memorial Grove, nine miles north of Orick on the State Highway in Humboldt County, was given to the State of California through the league, and the supervisors of San Mateo County appropriated $70,000 to purchase as a county park the McCormick tract of 310 acres on the county highway 6 miles from Pescadero.

Plant TREES Protect

Both of these are beautiful stands of timber. The Humboldt Pioneer Grove, the gift of Mrs. Zipporah Russ of Ferndale, is extremely important because it constitutes the beginning of a second unit of the Humboldt State Redwood Park along the highway north of Eureka and leading to Crescent City. It is one of the heaviest stands of timber anywhere in the redwood belt. It is conservatively valued at over $100,000. In deeding this tract Mrs. Russ asked that it be made a memorial to her husband, Joseph Russ, and to all the pioneers of Humboldt County.

Through E. E. Ayer of Chicago a fund of $20,000 has been made available to the league for the purchase of a redwood grove and through a donor who wishes his name withheld, a resident of Massachusetts, another fund of $25,000 has been established. At Eureka on May 4 the California State Federation of Women's Clubs unanimously voted to establish a fund for the purchase of a memorial grove at a price of approximately $60,000. This fund is now being collected and a substantial amount already is in sight.

From a part of the fund raised by Mr. Ayer the league already has been able to aid the State through the purchase and deeding to the people of 6½ acres of land adjoining the Phillipsville Grove, thus affording adequate public camping facilities at this grove.

The report shows that including the California State Redwood Park in the Big Basin, which includes 2,000 acres, there are 6157 acres of redwoods that have been preserved out of 1,000,000 acres of standing redwood timber in the State. The new Humboldt County Redwood Park contains 2425 acres and there are various scattered groves through the redwood belt that have been made public parks.

There are now more than 250 families in the Delhi State Land Settlement tract, according to a recent report, making an estimated total population of about 800. This represents an increase in four years of about 700 persons.

Method of Handling Cows on Test

(Continued From Page Three)

Another factor of considerable importance in the making of outstanding records is the influence of pregnancy. [illegible] long to have a cow unbred [illegible] making a long-time record has [illegible] quite a problem. Professor Eckles of Minnesota University has done considerable research work on this problem. He found that cows having [illegible] within yearly tests produced [illegible] 19 per cent less butterfat than [illegible] they dropped the second calves [illegible] 14 or 15 months after the tests began.

REASONS FOR DECLINE

Pregnancy does not affect the production until it has advanced at least [illegible] months. The decline after that [illegible] is not due to the demands of the [illegible], but to the hormones secreted by the pregnant mother in order to inhibit production. This is Nature's way of giving the mother a rest before her next calving.

The different breed associations have established "double letter" classes during the past few years and it seems [illegible] very good idea, as it permits the [illegible] to get about a calf a year, [illegible] appreciable decline during the ten-months' test, due to pregnancy.

Test animals must be kept comfortable at all times. Regularity should be practiced not only in the feeding and milking of the cows, but also in all other operations, such as watering and grooming. The cow is a creature of habit, and irregularities introduced in the barn routine often result in decreased production.

It is attention to such details that brings to the best dairyman the additional production that makes outstanding records. Backhaus observed that grooming increased the milk yield 4 to 7 per cent and the butterfat 2.5 to [illegible] per cent. Test animals ought to be groomed daily, as it promotes good health by keeping the pores open and the animals comfortable; it also tends to keep the milk clean by eliminating much of the dust.

CONTROL OF FLIES

The control of flies usually is quite an important problem. Freedom from this annoyance means much more comfort The first step is to get rid of the breeding places—manure piles and other filth accumulations. Manure should be hauled to the fields every day or two, in order to remove the fly larvae before they hatch.

If a manure pit is used, it is perhaps [illegible] to kill the larvae with powdered borax by dissolving one pound in water and sprinkling this amount over each 16 cubic feet of manure. Sacks should be hung over the doors and windows to darken the barn and keep it cooler. They also will brush off some of the flies as the cows enter.

Fly sprays are of some assistance, but the commercial sprays often are too expensive and they frequently blister the skin and do more harm than good. Poisoning the flies on the barn floor is a good plan where the floor is washed each day. This can be done by adding one teaspoon of formalin to a cup of milk and sprinking over the floor.

The time, frequency and manner of milking have a decided influence on the production. As a general rule when the intervals between milking are about the same, the milkings will be about the same in amount and per cent of butterfat. However, it has been shown that the milk secreted during the day [illegible] higher in butterfat because the secretory cells are more active, than at night.

Increasing the number of milkings a day increases the amount of milk and fat produced up to a certain limit. If milking were done too frequently, however the yield of milk would decrease due to the irritation of the [illegible]. The United States Department of Agriculture found that milking three times a day instead of two, showed an increased yield varying from 42 per [illegible] to 22.43 per cent, while milking four times a day instead of three showed a variation of production from 2.26 per cent to 11.63 per cent. This shows a great varition due to the individuality of the animals.

It sems generally true that cows giving rather small amounts of milk, quite rich in fat, cannot be made to increase production by milking four times instead of three. Quite a number of Jersey breeders have found this to be true.

Clean, efficient milking is to be recommended at all times. If a cow is not milked quite dry, the yield of milk will be decreased, but the fat will decrease faster in proportion, because the last drawn milk is much the richer. Rapid, clean milking stimulates production. When a gland is dry it is stimulated to produce more. This is Nature's way of supplying the needs of the calf.

MACHINE VS. HAND MILKING

In the past it has not been the common practice to milk cows on official test by machine. The older machines were none too good and they were not always operated properly; therefore there was some prejudice against them. At the present time an increasing number of breeders are using them on test animals and are quite pleased with the results. In fact, some have shown an increased production on the machine compared to the hand milking. This is most often true in case of a cow that is difficult to milk rapidly and cleanly by hand.

On June 1, 1923, seven cows, including Jerseys, Holstein and Guernseys at the University Farm at Davis, were placed on the machine-milking plan. During May the seven averaged 45.1 pounds of butterfat. During June and July with machine milking, they averaged 45.2 pounds of butterfat. This is rather a low average production for a string of test cows, but it included a majority of the two and three-year-olds, well along in their lactation periods. Since they were advancing in lactation and the weather was getting warmer, it seemed a good thing to have them hold production when placed on the machine.

F. W. Woll made extensive investigations in comparing hand and machine milking, and reported his figures in California Bulletin No. 311. He found a large number of cows made practically the same records in persistency and total production with the two methods of milking under ordinary herd conditions.

OBJECTIONS OVERCOME

An objection frequently raised to machines for test cow work is the fact that there is not enough massaging of the udder for sufficient stimulation. This can be overcome by the milkers' using one single unit, thus allowing time to massage the udder before the machine is put in place.

There is such a variation between the costs of the two methods of milking that it is almost the deciding factor in making a profit or loss from a string of test cows. With the test man caring for the usual six animals that are milked four times a day, it costs about $250 per year per cow for labor. Since he can handle nine by using a machine, it reduces the cost nearly $100 per cow per year.

While milking three times per day, a man can care for about eight animals, making the labor cost about $170 per cow per year. If he handles 12 with the same labor, he reduces the cost to $130 per cow per year.

It is probably best to give phenomenal producers the best of care, possibly including a box stall and hand milking, but it is quite doubtful whether the increased production would justify such methods in handling the average test cow.

(Editor's Note—Another important article by Mr Drumm will appear in a forthcoming number of ORCHARD and FARM.)

Livestock Feeding Handbook Sent Free

All farmers should be interested in the new publication, "A Handbook for Better Feeding of Livestock" just [illegible] by the United States Department of Agriculture, as a part of a recently [illegible] service for better feeding [illegible]. This booklet contains [illegible] practical and up-to-date [illegible] on the feeding of cattle, [illegible] poultry [illegible] of country-wide [illegible] farm feeding problems [illegible] all the different [illegible] considered separately [illegible] special [illegible] animals, [illegible] and calves. Consideration is given to the feeding of farm wastes and by-products, the use of mineral feeds, the use of self-feeders, tonics, hogging down crops, commercial feeds, dehorning and castrating, with relation to feeding and management mixing feeds and making up balanced rations, shelter for animals as it affects their production, water and salt Sample rations are given for the various kinds of animals under different conditions The importance of good breeding in obtaining maximum gains is emphasized

"No set of specific feeding rules can be wisely applied throughout the country," says John R. Mohler, chief of the Bureau of Animal Industry, in a foreword to the handbook. "Local conditions, seasonal changes, and many other factors," he continues, "combine to make the best feeding practices change from place to place and from time to time. This handbook discusses the main points most commonly encountered in feeding, but which should always be adapted to local conditions."

Copies of the handbook, which is known as "Miscellaneous Circular No. 12," may be obtained free, as long as the supply lasts, by addressing the U. S. Department of Agriculture, Washington, D. C.

Field Demonstration

A VALUABLE type of work which has become common under the county agent system is that which has for its object the actual demonstration of certain methods of orchard practices. In recent years various demonstrations in pruning, spraying, thinning and soil moisture have been conducted in every corner of the State.

The farmer no longer has to depend on what he reads in books or bulletins, but may observe in his own orchard or in his neighbor's grove an actual demonstration of the things that books relate.

No fruit grower can afford to miss the opportunity of attending these demonstrations, when they are held in his community. They represent the modern method of carrying the work of the experiment station direct to the farmer and the lessons that are taught by experts in the Extension Service are so important that every farmer should make a special effort to be present whenever his community is favored with a demonstration.—G. P. W.

Blasting Out Stumps

BECAUSE fire swept over his ground and burned the trees on it a number of years ago, Ed Elsner of Palermo is unable to use a stump puller to clear the land and has to blast out the roots with dynamite.

The fire burned up everything but the roots of many trees and they put out shoots at the stump. In time these grew up and became small trees. When a strain is put on them they break off at the stump and the roots remain in the ground. The only way to clear such land is to blow out the stump with dynamite.—T. F.

Lifting Pigs Humanely

TAKING exception to "Tulare Farmer's" suggestion that little pigs be lifted by the tail to prevent squealing, J. J. Ellyson, a Bridgeville (Humboldt County) subscriber, protests this method is not humane.

A better method, according to Ellyson, is to slip up quietly when the pigs are suckling, take a pig with the right hand by the right hind leg, lift the hind quarters to an angle of 45 degrees, at the same time slip the left hand under the pig at its middle.

The pig then may be carried away, still held at the same angle, without any disturbance, says Ellyson.

MEAT SUPPLY BREAKS RECORD

The "helpings" of meat on American tables were larger during 1923 than in any other year of the past fifteen, according to the U. S. Department of Agriculture. The consumption of all meats per capita was 167 pounds.

I Have Found Out How to Get Rid of Superfluous Hair at Once

Here's the Secret

I had become utterly discouraged with a heavy growth of hair on my face and lip. I tried every way to get rid of it—all the depilatories I had heard of, electrolysis, even a razor. I tried every advertised remedy, but all were disappointments.

I thought it was all hopeless until there came to me the simple but truly wonderful discovery which has brought such great relief and joy to me and to other women that it really cannot be expressed in words.

My face is now not only perfectly free from superfluous hair but smooth and soft as a baby's, all by use of the simple method which I will gladly explain to any woman who will send her name and address.

This amazing method is different from anything you have ever used—not a powder, paste, wax or liquid, not a razor, not electricity. It will remove superfluous hair at once and will make the skin soft, smooth and beautifully attractive. Its use means an adorable appearance. And you face the brightest light—the most brilliant electric lamps—even the glare of sunlight joyously.

With this method, used according to the simple directions I will give you, your trouble with superfluous hair is over permanently. You will never again appear with that ugly growth to disfigure your face.

So overjoyed was I at the results this discovery brought to me that I gave it my own name—Lanzette.

Send for Free Book

A book that tells just how this wonderful method gets rid of superfluous hair is free upon request. Don't send a penny—just a letter or post card. Address Annette Lanzette, Dept. 904 Care Hygienic Laboratories, 204 South Peoria St., Chicago, Ill.

FARMERS' CLASSIFIED MARKET PLACE

CLASSIFIED RATES

70 cents a line, or 60 cents a line for four or more consecutive issues (average 7 words). For white space, cuts or display type, cost is computed according to total space occupied by advertisement.

Advertisements must reach us 15 days before date of publication.

Address ORCHARD and FARM, Broadway at Eleventh, Los Angeles.

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CERTIFIED White Leghorn quality chicks from selected free-range, heavy-laying, utility hens mated to double pedigree cockerels with authentic trapnest records. Our breeding flocks are inspected and accredited by the Sonoma County Farm Bureau. Safe arrival and full count of live, vigorous chicks guaranteed. Accredited "AA" grade chicks at single "A" prices. Send for catalogue and attractive spring prices. MUST HATCH INCUBATOR CO., INC., the World's Largest Electric Hatchery, 132 7th St., Petaluma, Cal.

NOTICE—We are booked to full capacity till April 22nd; can supply chicks on this date and every week after. Owing to the great demand for our chicks we will enlarge both our plant and hatchery; also increase our breeding stock for 1925, so book your orders early for next season. Largest W. L. breeder in Santa Cruz Co. WEBB'S CACKLE FARM, 227 Park Way, Santa Cruz.

BABY CHICKS—Only the better grade at popular prices—Hanson White Leghorns, Brown and Buff Leghorns, Reds, Barred Rocks, Anconas, Black Minorcas, Blue Andulusians, White Wyandotte and Buff Orpingtons. Order early. Free folder. McDONALD POULTRY RANCH AND HATCHERY, Route 1, Box 246, San Jose, Calif.

BETTER BABY CHICKS from high grade stock. White Leghorns from excellent matings including Hanson and Tancred strains. Also R. I. Reds and Barred Rocks every Tuesday. Anconas, Black Minorcas, and White Rocks in season. Write the SANTA CLARA VALLEY HATCHERY, 1049 Lincoln ave., San Jose, Calif.

WHITE LEGHORN BABY CHIX of unusual value, from especially well culled hens mated with full pedigreed males. Prices per 100: March, $14; April, $12.50; May and June, $12. 100 per cent live, strong chix guaranteed. We are accredited by the Sonoma County Farm Bureau. THE PIONEER HATCHERY, 476 6th St., Petaluma, Calif.

March and April Chicks Lay Winter Eggs

STURDY baby chicks. Best breeding; heavy laying strains; guaranteed live chicks, 72 hours from L. A. 17 successful years in the baby chick industry; get the best; order today; turkeys, ducklings. Pioneer hovers; fireless brooders. Write for price lists. Pioneer Hatchery, 326 S. Spring St., Los Angeles.

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CERTIFIED CHICKS—White Leghorns from guaranteed two-year-old hens, mated to Hollywood, Hanson and Tancred males of high trapnested record. Write us for descriptive catalogue. ORLAND HATCHERY, Orland, Glenn Co., Calif.

OAK KNOLL POULTRY RANCH—Baby chix from our pure-blood 2 to 4-year-old W. L. hens. Cockerels from Hanson's trapnested 250-egg stock. 13 years' experience in breeding and hatching. Prices are reasonable. T. E. BLAKE, Santa Cruz, Calif.

THE WORLD FAMED FOWL—Russian Orloff and Hale Sacredo Turkens. Booking orders now for hatching eggs. Circulars FREE. Only breeder of GENUINE stock in America. GEO. SCHAEFER, MENLO PARK, CALIFORNIA.

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HIGH-GRADE CHICKS from selected Hoganized stock at reasonable prices. White, Brown, Buff Leghorns, Rhode Island Reds, Barred Rocks, Anconas and Black Minorcas. Union District Hatchery, Los Gatos, Calif.

ORDER your W. L. pullets and breeding cockerels from Petaluma's finest raising plant. "Stock that will not disappoint you!" Write for information. L. MUNCHIN, Prop., Reliable Pullet Farm, Petaluma.

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POULTRY

OUR 1924 CHICKS—Prices, Quality—Will delight new and regular customers alike. Capacity 300,000. White, Brown, Buff Leghorns, Anconas, Reds; Barred, White Rocks; Minorcas, Wyandottes, Brahmas, Andalusians, Orpingtons. From some of world's greatest layers; reasonable. Reduced booked ahead. Nearly half-booked for most Winter, Spring weeks. They prove profitable. "Never saw such size, vigor, rapid growth, egg-yield." Write for proof. PROFITABLE POULTRY, 13 North Fair Oaks, Pasadena, Cal.

ORDER NOW—White Leghorn baby chicks from purebred stock, Ferris strain. Only pedigreed cockerels of 228 to 301 egg records used. Also R. I. Reds; dark, large, heavy layers; make profitable broilers. Write for attractive prices on large or small orders. Satisfaction guaranteed. Anderson's Hatchery and Poultry Farm, Modesto, Calif.

PEERLESS WHITE WYANDOTTES, ATKINSON PEERLESS ANCONAS—I am originator and breeder of "Peerless" strain birds for 20 years. Leading prize winners at largest poultry shows. Official egg records, 252 to 261 eggs. Mated pens, cockerels, hatching eggs. Illustrated catalog free. J. W. ATKINSON, Box 10, 130 So. Willard Ave., San Jose, California.

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WE'RE BOOKING CHICKS for most spring weeks from some of World's highest egg-producing Leghorns, Anconas, Reds, Rocks, Minorcas, Brahmas, Wyandottes, Andalusians, Orpingtons, reasonable. Reduced booked ahead. Capacity 200,000. "Your chicks are stronger and beautiful, your hens heavy winter layers." Write Bred-to-Lay, 1333 Ingraham st., Los Angeles, Calif.

CERTIFIED BABY CHICKS from inspected flocks. All hens have undergone rigid inspection; mated with males having authentic trapnest records of at least 200 eggs on the side of both parents. Certified by Alameda County Poultry Breeders' Assn. Now booking orders for fall and spring deliv. Utility prices. Chanticleer Elec. Hatch., Inc., Hayward, Cal.

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PULLETS RAISED TO ORDER—White Leghorns from pedigreed trap nested proven producers. All ages. Mrs. H. GILLESPIE, Tres Pinos, Calif.

BABY CHICKS—Send for price list. SANTA CLARA POULTRY YARDS, Breeders and Hatchers, Oxnard, Calif.

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BLOOD WILL TELL—Let a well-blooded tom head your flock and increase vitality of poults. Where no inbred birds prevail in 10 years raising turkeys. Stock for sale at all times; eggs in season; baby turks hen-hatched. JENKINS, the veteran breeder American Mexican wild-blooded bronze turkeys. R. 3, Box 1176, Burbank, Calif. End of 9998 blk., San Fernando Rd., Dundee Crossing.

CASA DE ROSAS TURKEY RANCH, Carmel-by-the-Sea, Cal. Engage your GOLDBANK BABY TURKS now. Special reduction chicken sale, prize stock. Creation Brown Leghorns, pens, chicks, eggs. Also Toulouse geese and Carneau pigeons.

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1414 A., FRONTS ROCK HIGHWAY, 6 mi. good ry. town, ½ mi. 2-r. school, 428 a. 13-yr.-old orchard, 1-6 each, Bartlett and d'Anjou pears, 1-3 each, Spitz, Newtown apples. Rich soil, no irrigation, ample rainfall. No blight nor scale. 36 a. plow land, 950 a. fine pasture, timber. Machinery, tractor, truck. $35,000, ¼ cash, no trades. Worth double. Many other bargains. Cool summers, mild winters, no alkali, malaria nor mosquitoes. B. JOHNSON, Saginaw, Ore.

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NO COMMISSION. Sell your farm direct to buyer. We put you in touch with thousands of buyers through our chain office service. Booklets of farms for sale by owners free. OWNERS' NATIONAL LISTING BUREAU, INC., 439-40 Roberts Bldg., Los Angeles, Calif.

POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks Intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, California.

MUST HAVE CASH—BIG BARGAIN. Modoc Co., Calif., 160 acres, cultivated, level, productive land; house, barn, garage, fenced, clear deed, full price $3200. Owner, 210 Main Street, Huntington Beach, Calif.

HAVE taken in on trade and will sell at a bargain, a well-equipped 30 cow dairy, in Humboldt County. Address V. C. BRYANT, College of Agriculture, Berkeley, Calif.

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ASSORTMENT OF BEAUTIFUL

GLADIOLUS

10—MRS. F. KING (red)

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ONLY $1.25 postpaid. Double order, $2.25.

YELLOW CALLA LILIES 25c each.

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ALFALFA SEED—Original Hairy Peruvian. When writing state amount wanted. LEO TURNER, Yuma, Arizona. 23 years on Yuma Valley Farms.

ALFALFA SEED FOR SALE. Hairy Peruvian, Smooth Peruvian or Common; new crop, high purity and germination. Write wire or phone for prices and samples. E. F. SANGUINETTI, Yuma, Ariz. Established 1888.

GLADIOLUS, mixed, large, 20, $1, blooming size, 40, $1.00, planting stock, 100, $1.00, bulblets, 1000, $1.00. Price list. C. O. JORGENSON, Salinas, Calif.

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CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

FARM WANTED—Immediately, from owner. Send particulars. MRS. ROBERTS, Box 83, Roadhouse, Ill.

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NEW and rebuilt implements at special prices. Call and see them. ARNOTT & CO., 114 S. Los Angeles St., Los Angeles.

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RABBITS AND PIGEONS

PIGEONS—Selected Silver King youngsters for sale. JAS. A. AVERY, Napa, Calif. R. R. 1, 704.

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HOMESPUN TOBACCO: Chewing, 5 lbs., $1.75, 10, $3; smoking, 5 lbs. $1.25, 10, $2. Pipe and recipe free, pay when received. CO-OPERATIVE FARMERS, Paducah, Ky.

Orchard and Farm Classified Advertisements reach 300,000 families every week.

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Know Your CALIFORNIA

Little Journeys Into Agricultural Districts

[Editor's Note—Brief, intimate glimpses of agricultural communities in various parts of the State will be published from time to time under this heading. Subjects will be chosen at random without regard to rank in production or agricultural importance. To acquaint you with your California, its opportunities and delights, by a member of ORCHARD and FARM representatives, these informative little journeys.]

1—The Milo District, Tulare County

IN the early days the portion of the mountainous section of Tulare County, now known as the Milo district, was regarded only as a wild range suitable for the grazing of herds at certain seasons of the year, and an ideal spot where the hunter might bring down his game. Huge rattlesnakes infested the underbrush and seemingly barren areas of rocks and boulders.

The late Alvin H. Slocum related his experience in killing bears, the largest a grizzly of 1350 pounds, just nine miles from Springville, in a single season. Settling, in 1866, this pioneer [illegible] what is still known as the S[illegible] Ranch, one mile east of what [illegible] became the site of the Milo [illegible].

Here, he engaged in the stock industry, making a specialty of China hogs and Durham [illegible] them across hills to the [illegible] ket, a distance of about 75 [illegible] nearest neighbor to the Slocums was the small settlement of Por[illegible] about 25 miles away.

This locality, and the North T[illegible] tion of the Milo district, through the first trail was blazed in the sixties by Frank Knowles, now produces numerous varieties of mountain apples, wonderful in their perfect form and flavor, that have won prizes at leading shows, and have become famous on foreign markets.

After the settlers had blazed the trail and killed off as rapidly as possible, the dangerous, marauding animals, that threatened life as well as property, a tiny cabin went up occasionally, in the heart of the pines and redwoods, next a small plot of ground was cleared for the garden, and, after a while, a few fruit trees were tried out in the soil around the cabin. The vision grew and the combination of brain, courage and [illegible] worked itself out into the development of one of the most promising fruit producing districts of central California.

Now the large commercial apple orchard of George Dillon, winner of prize displays, is to be [illegible] Battle Mountain section where [illegible] have been killed on a single [illegible] expedition.

The 1,000 fine apple trees of the Sherwin farm, receiving [illegible] scientific treatment, lit[illegible] from the wilderness. The [illegible] ranches, aggregating almost [illegible] are fast being cleared and [illegible] apples, Bartlett pears and [illegible] and diversified farming p[illegible].

The Perry Osborn ranch [illegible] apple trees, many of which [illegible] greed, including fifty "S[illegible] licious," the mother tree of [illegible] Stark's nurseries, Louisiana, M[illegible] said to be valued at $[illegible] mous berry and vegetable [illegible] altitude of 4000 feet, nestled at the [illegible] of Dennison Peak, down wh[illegible] acing Diamond rattlers [illegible] The Frank Flagg ranch, [illegible] ing apple trees and alfalfa [illegible] once the home of the mountain [illegible].

These, and other profitable [illegible] in this district, have become [illegible] factors in the big scheme of [illegible] ment that is transforming [illegible] considered barren and re[illegible] portant centers of prod[illegible] WYLDE.

HAY FOR SALE

ALFALFA HAY—[illegible] reet and save money. Write [illegible] Walla Walla, Wash.

California White Leghorn Breeding Fa[rm]

SUPERIOR ENGLISH LEGHORNS, INTERNATIONALLY K[NOWN]

THE WORLD'S BEST

Write for mating [illegible] chix sold for February [illegible] sold. Hatching eggs now for sale [illegible] to 3[illegible] egg records.

ECKMAN & MILLIGAN, Lankershim, Ca[l.]

Subsoiling Vineyard Gets Big Results

ALL the difference between complete failure and substantial success was made by fall subsoiling a young vineyard in southern Tulare County a year ago. The prosperous vineyard is the "W" ranch of C. A. Wotton and Robert Whylock, east of Earlimart. The other is an adjoining vineyard which is irrigated from the same well and received a little more water. The vines were planted at the same time with stock from the same nursery on similar soil and given almost identical care, save for the one fact of subsoiling.

Such a difference as this would occur between two similar vineyards, if there were not for rather exceptional soil conditions. The ranches are out on the edge of the valley and the soil is deep alluvial. It is of a decomposed granite formation, with a high percentage of clay, and runs together, so that the water does not penetrate well, and the roots develop well unless the soil is loosened up.

In order to do the loosening, Wotton used a heavy tracklayer tractor and a strong subsoiler in November. He tried three ways of using the outfit and the results were quite striking.

The subsoiler first was run down a number of rows, using three standards, set as deep as the tractor could pull them, which was about eighteen inches. On some of these rows a return trip was made with only one standard set thirty inches deep. This gave one cut in the center thirty inches deep and two cuts at the side a little more than half that depth.

The rest of the vineyard was subsoiled with a single standard as deep as the tractor could pull it—about twenty-six inches.

Upper view shows vineyard which was not subsoiled. Below is shown adjoining property, indicating result of intelligent deep tillage.

The finest results were obtained with the double subsoiling, for the soil was broken both deeper and wider. However, the great lesson came in the difference between the first two. Where a single standard was used the tillage naturally was far deeper than with three standards and the side lifting of the soil from that deep working seemed to be very effective, so that the vineyard was a good deal better than when the three standards were used. The cost was the same.

The moral for subsoiling would therefore seem to be: A few deep cuts are far better than twice or three times as many shallower cuts. Most of the acreage is in Thompsons, which yielded two tons of raisins to the acre. Where the two subsoilings were done the yield in spots was nearly a half ton more.

The vines in the other vineyard look unthrifty, but with the deep working promised them they bid fair to show the great growth and heavy production that vineyards in this district develop.
—TULARE FARMER.

A Big Bargain In Beautiful Gladiolas

For ten days we will ship to any address, postpaid the following famous Gladiola bulbs for only $1.00.

3 America (pink)
3 Mrs. Francis King (red)
2 Mrs. Frank Pendleton (rose and carmine)
3 Schwaben (yellow)
2 White

We also include FREE one of the beautiful new Virginias which have become so popular.

These bulbs are the very best strong and hardy which will bloom this summer. Order at once, stating only $1.00 for all. Remain of the season, our catalog FREE.

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SEEDS BULBS AND PLANTS
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Big Money for Spare Time Workers

This notice is written to interest the man who wants to earn some money and in return for very liberal pay would be willing to introduce to friends and neighbors the finest C. T. A. clothes selling for $19.00, $24.00, $31.50, $32.50 per suit. We give one man in each community one of our best suits and in addition pay $3 to $12 for each order, besides extra cash bonuses, and many beautiful presents, including $1000 in cash, Ford Sedan, Elgin watch, Diamond Ring, etc. If you would like a fine suit and will be willing to show samples to at least a few men each week, send me your name and address and I will be glad to send you full details. C. A. Milligan, Mgr.
Chicago Tailors Association
Dept. 8[illegible], Sta. C, Chicago

RHEUMATISM

I have returned home after [illegible] years spent in France with the A. E. F. [illegible]

Walnut Experiment

J. D. BIXBY, the Covina bee man is growing a fine young walnut orchard, which he gives the same careful attention and thoughtful care that his apiary receives. He contributes the following ideas and description of tests and conditions:

Thirty feet from my outside row of bearing trees is one of 5-year-old budded trees only two of which are as large as the rest of the grove, probably owing to a shortage of water the first two years and to the sapping of the older trees. Although this row had more fertilizer in the way of hen-scratch and general waste than the rest of the grove, it failed to make equal growth.

Five trees were especially small. These, together with three in the main grove, were dug about to expose the roots. All had a bulb-like enlargement above the union, but seemed healthy. These bulbs ranged from two to four inches in diameter and seemed healthy, as did also the growth of the tree.

The largest bulge of all was selected to show a quarter from, just as you would cut a quarter from an apple. It appeared perfectly healthy. The wound was painted over with asphalt paint.

Then all these stunted trees had pits dug about two feet away, in each of which was dumped a couple of wheelbarrow loads of coarse manure, which was covered up.

The results the next year were not particularly noticeable, but this season all trees bore some nuts and the growth was satisfactory. The tree "operated on" bore a number of fine nuts and made a particularly good growth, although it was the smallest and poorest tree of the entire 250. The wound is all healed over.

We have been hearing some very interesting lectures, showing the slow growth of walnut trees in China as well as in various European countries. Likewise we have been hearing numerous roars from California men on too rapid growth—trees 18 to 20 years old interlacing at sixty feet apart, and growing so tall that derricks mounted on trucks are necessary to shake down the nuts.

Cannot some of our experts figure out a mean between these two extremes? A six-inch fruit spur is greatly preferable to a six-foot one, especially if we can attain the same yield with less water, fertilizer or cultivation.

One of my neighbors has a fifteen-acre grove of 10-year-old trees. It was never cultivated this season, until time to pick the nuts approached. A cover crop, largely weeds, was on the ground. Moderate irrigation was given. The crop was heavy and the nuts were among the finest and largest delivered at the local packing house.

This man keeps a small dairy. I am wondering if there is any connection between the cows and the walnuts. The fertilizer experts say not, but I "ha' me doots."

Advertises Apples

TWO specially built auto trucks are being used by the Hood River, Ore., Apple Growers' Association to advertise their product. One of the cars is routed through California, Texas and Louisiana, while the other is going through Denver and Kansas City to points farther east.

The cars are driven by salesmen, who take orders for carlot shipments of fruit, samples of which are displayed in the autos. Calls on wholesalers and jobbers are being made.

A vertical signboard is hoisted above the car when needed. When a car of fruit is sold, the fact that Blue Diamond brand Hood River apples can be purchased locally, and of whom, is announced on this sign.

J. R. Hunamaker, "apple king of Hood River Valley," originated the idea of advertising apples with an auto. A. F. S. Steele, manager of the association, helped work out the details of the enterprise, which he is confident will prove very successful.

Sells Direct by Mail

(Continued from Page 2)

replaced with grapefruit by planting gradually as old apricot trees are removed.

"The apricot tree is short lived in the Valley," points out the owner, "but some years we have made good money shipping early fruit to Los Angeles, San Francisco and Salt Lake City. Often we have received $1 to $1.50 per crate of four baskets."

Steiner recently acquired a tract of land adjoining his home ranch and will continue to enlarge his fruit enterprise, indicating his faith in the valley and its money-making possibilites. Already he requires the help of three "steady" men, and during the harvest season, employs extra "hands."

He plans to construct a modern packing plant on his own ranch, to replace the smaller house now in use, and both he and Mrs. Steiner express satisfaction with their home, their business and prospects for the future.

Now, if his ever increasing sales were not sufficient evidence of the real quality of the Steiner product, there is available a concrete exhibit in the form of cash awards and ribbons won at the Brawley mid-winter fair. Steiner captured most of the grapefruit prizes, including $25 for best 10 half boxes; $25 for most artistic rack display of 20 half boxes and $5 for best half box.

"It's the soil and climate," modestly explains the champion grapefruit grower. For like all good Californians, he's a booster for his community.

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Red Top Steel Fence Posts and Farm Fencing
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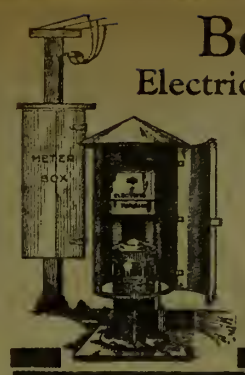

Bean Electric Turbine Pump
(Cover-it Type)
Complete as shown
Sizes: 6, 7, 8, 10, 12 and 15 inches

Motor and pump built into a single unit, Starting Switch, Entrance Switch, steel "Cover-it", and all wiring and conduit complete, ready to connect up to your power line. We furnish everything but the well. Fire-proof. Rain-proof. No shaft bearings below the pump head. No trouble from sand or grit. Low in cost. Economical to operate. In 6-inch size for domestic wells, larger sizes to 15-inch.

Don't dig a new well until you try a Bean Electric Turbine in your old one.

Sign and send the coupon for full information.

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101 W. Julian St., SAN JOSE, CAL.

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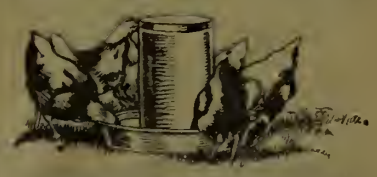
101 W. Julian Street, San Jose, Cal.
Please send me your new pump catalog with information on the Bean Electric Turbine.
Acres to irrigate _____
Name _____
Address _____

Mineralized Water Routs Chicken Lice

No Dusting or Spraying—Birds Delouse Themselves. Fine for Baby Chicks and All Poultry.

A recent discovery promises to revolutionize all the commonly accepted methods for keeping poultry free from lice and mites. This wonderful product keeps the poultry always lice-free without the poultry raiser doing any work. It is the simplest, easiest, surest and best method ever discovered.



Lice Tabs, which is the name of this remarkable lice remedy, is dropped in the chickens' drinking water. Taken into the system of the bird, it comes out through the oil glands, and every louse or mite leaves the body. It is guaranteed to help the hatchability of the eggs, and cannot injure the flavor of the eggs or meat; is harmless to chicks and does not affect the plumage. A few days' treatment at the start and then a little added to the drinking water each month is all that is necessary.

Send No Money, just your name and address to Lice Tab Laboratories, Dept. 14, 845 S. Wabash Ave., Chicago, Ill. A card will do. So confident is the Laboratory that Lice Tabs will get rid of every louse or mite that they will send you two large louse strength $1.00 packages for the price of one. When they arrive, pay postman only $1.00 and postage. Sell one to your neighbor and get yours free. If you are not absolutely satisfied after 30 days' trial, your money will be refunded. Write today before this remarkable trial offer is withdrawn.

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ALUMINUM CHICK FEEDER for FEED, GRIT, MILK or WATER. Simple, safe and sanitary. Chicks can't get feet into contents. Send 30c. cash or stamps for one postpaid. Money back if not satisfied. 30c
American Poultry Jour'l, 478-523 Plymouth Ct., Chicago

Grading and Improving Our Grapefruit

By PAUL FINDLAY

[Note—Mr Findlay is a successful grocer who has made a special study of California grapefruit. The following observations are taken from a paper published in the Retail Grocers' Advocate.]

CALIFORNIA improves its grapefruit with every passing season. The skin becomes annually thinner, it gets sweeter, in every way more attractive and of improved general excellence. That the acreage increases annually—so there is more of it each season—is an additional advantage, because grapefruit converts are made daily.

The traveler in California is struck by one peculiar thing, if he is a lover of grapefruit. The minute he crosses the border into California. Florida grapefruit is not to be had in the diner or elsewhere. If he notes this at all, he is apt to conclude that this is due to interstate jealousy; but in that he would be wrong.

DANGER OF INFECTION

The explanation is that California has a set of citrus diseases and Florida another set. Each State is satisfied with the troubles it has and does not care to increase the number or variety thereof.

We need only think that a single rind of grapefruit infected with a new scale, canker or other parasite dropped out of a car window in California might impregnate an entire grove and spread until the infection was so general as to cost the growers several million dollars a year—besides seriously curtailing the quantity and lowering the quality of the fruit—to realize why California protects herself most rigidly from Florida infection.

The Florida folks do the same thing, I believe, and it is right, legitimate and proper that they do so. It took only a little infection seriously to curtail a crop of walnuts a few years since; and only good fortune plus that eternal vigilance which is the price of any liberty enabled the cultural experts to discover a remedy. The sunshine that grows flowers also enables weeds to thrive.

To indicate that there is nothing narrow about the co-operative organizations that have existed long enough to achieve the understanding spirit of co-operation, when Florida got ready a few years since to advertise her Sealdsweet oranges and grapefruit, she sent a delegation of orchardists and business organizers to Los Angeles.

EXCHANGE HELPS GROWER

Those men were given, literally, everything the California men had learned. They spent some three weeks in the offices of the Exchange, going over records, holding conferences, studying the advertising and learning all that the California men had discovered during their whole experience of near thirty years.

Just what constitutes quality in grapefruit? This is an important question, both from the standpoint of dealer and consumer. Usually, flat grapefruit carries a thinner skin than the snub-nosed, oblong type. Freedom from scars and dirt is also a factor in determining grade. Freedom from frost injury or dessication for any reason or cause is essential for fruit to be packed under either Sunkist or Certified Choice grades.

In addition, both first grades are required to test five to one; that is, five parts soluble solids to one part acid. This is the type of maturity established by the Government, and fruit that passes this test is of good eating quality and flavor.

FRUIT BECOMING SEEDLESS

California grapefruit is like other California fruits in that it tends to become seedless. California grapefruit is not as yet entirely seedless, but it is practically so, and in that respect it is in pleasant contrast with the Florida product.

Another advantage is that, like California oranges, the cellular structure is very tender. Whereas the divisional walls in Florida citrus fruits are tough and stringy, the same walls in California fruits are so tender the entire pulp melts in your mouth.

California grapefruit is a very good keeper, and a final important advantage is that California grapefruit can be obtained when no other is on the market. Excellent grapefruit now comes from Arizona where groves have come into bearing within recent years; and the product of the Imperial Valley is exceedingly juicy and so sweet as to remind one of the sweetest oranges.

Grafting Walnut Trees

There is a row of fourteen 15-year-old budded trees along the front of my ranch. These all bear well except one, which is barren every year. This tree is but little behind the others in size, very erect and symmetrical. It leaves out very early in the spring and often freezes back, making a large number of branching shoots, which later resemble "little leaf"; otherwise it looks healthy. I have exposed the roots for eighteen inches about the trunk and can see nothing wrong. Am planning to top-graft. What would you advise?—J. D. BIXBY, SR., Los Angeles County.

THE walnut tree that is not bearing fruit can be budded or grafted. In all probability it never would be of any value if left in its present form and I would strongly recommend grafting.

It is not an easy matter to get grafts to grow on the walnut and therefore it would be well to find someone who is expert in this work.

There is, without question, an inherent tendency toward light production in certain individual walnut trees and in this case of a walnut which does not bear and yet there seems to be nothing wrong above or below ground it is pretty safe to expect that the trouble is more deep-seated and that the only remedy is grafting. G. P. WELDON.

Increasing Fruit Profits

(Continued from Page 3)

control in some sections than others, and where this trouble has not made its appearance, the grower is fortunate.

The cost of fighting frost, or at least being equipped and prepared each spring for this purpose is an expense which adds its share to the cost of production in certain localities. If orchard heating enables the orchardist to secure a crop which otherwise he would not produce, the expense may be justified, but certainly in many instances the investment is only another item to be subtracted from the gross returns and the "insurance" does not pay the cost of the premiums. In a few cases the opposite conditions may exist—where untimely frosts are too frequent, the grower had better pull out his trees.

The above are only a few of the possible leaks by which the cost increases and the net profits, little by little, go the other direction. It is believed that the majority of orchardists could not spend a few days of their time this winter to better advantage than in making a critical analysis of their items of cost and in studying out a satisfactory method as to how these may be reduced during the coming season. Since cost accounting until recent years has been confined largely to bookkeepers who sat at a desk on a high stool, there are doubtless many fruit growers who have felt that bookkeeping was beyond their ability or was not worth the effort. Both of these assumptions are false. Fruit growing is a highly specialized business and while only the simplest forms of books are necessary, without these one is carrying on his business in only a haphazard way.

THE MARKETING PROBLEM

With a good crop of high grade fruit, produced at a minimum cost, the producer may feel that his work is completed. In the last analysis, however, net returns will depend upon efficient distribution. Marketing in the main has been looked upon as something foreign to fruit production. While perhaps there have been good and sufficient reasons for such an attitude yet these conditions are changing and perhaps the most discussed question before the fruit growers today is that of marketing.

California is already widely known for its cooperative organizations, owned and controlled by growers. Since, however, even such associations as these, on account of the great amount of fruit handled, must employ skilled experts who devoted their entire time to various phases of transportation and marketing, the individual has failed in many instances to recognize his own interests.

Co-operative associations are in no way perfect and as most growers know are not a guarantee of satisfactory prices. With continued improvement, however, in both the machinery and method of operation, they are a means of securing the highest net returns the market justifies.

Only by united effort can growers adequately advertise and properly distribute their fruit; only by such effort will freight rates and transportation difficulties be satisfactorily adjusted and the spread of prices between the producer and consumer lessened. While it is true such matters as these are largely in the hands of certain officers or paid employees the constant interest help and loyalty of each grower is essential.

When under present economic conditions a sales manager is confronted with the problem of disposing of a large crop of small or inferior fruit, he is perhaps more in need of sympathy than criticism. Successful marketing must be based on a quality product and to secure a satisfactory price, the fruit must be as nearly perfect as humanly possible. Fruit so grown next must be harvested and shipped in such a manner as to maintain and possess this quality when opened for sale after its trip across the continent.

THE FINAL VERDICT

Proper maturity for harvesting is a question of interest today. We have become accustomed to looking at a crate of large size plums as they are ready to start their journey eastward and remarking: "They are of fine quality." Mrs. Frequent Fruitbuyer of Baltimore, however, looks at the same fruit ten days later and exclaims: "Why, that sour green fruit isn't fit to eat!" Now, who is right?

Successful merchants never argue with their customers but always give them the benefit of the doubt, and with much of California fruit there is no doubt at all but that the buyer's opinion is supported by the facts. Perhaps the grower who looks only at the size of the fruit and its freedom from blemishes speaks a different language, so to speak, from the buyer who wants something not only attractive to the eye but also agreeable to the taste.

While fruit must of necessity be comparatively firm yet in order to secure satisfactory market returns it must be well colored and in the best possible eating condition when exposed f[illegible] in the retail stores of the Eastern [illegible]kets. The buyer is the final judge [illegible] whose decision there is no appeal [illegible] responsibility of the individual gr[illegible] does not cease when his fruit start[illegible] market but only after that fru[illegible] finally sold and consumed. Su[illegible] statement may seem like placing [illegible] much blame on the grower—he [illegible]tainly is blamed for enough things [illegible]ready—but as the time and method [illegible] harvesting, handling and packing [illegible] profoundly influence the appeara[illegible] and quality of his fruit at the mark[illegible] end of the line, the charge of freque[illegible]ly being careless in these operati[illegible] must stand against him. It has b[illegible] said that if every grower could v[illegible] the Eastern markets and see his fr[illegible] as it is displayed, he would retur[illegible] much wiser and better orchardist.

Aside from seeing much in[illegible]or f[illegible] and that injured by poor pack[illegible] will be noticed that some varieties [illegible] in much greater demand than ot[illegible] Yes, it can be said truthfully that [illegible]ers are peculiar. If they becon[illegible] customed to eating red plums [illegible] plums they want. Blue ones [illegible] places would be a drug on the [illegible] and probably would not sell f[illegible] ficient price to pay the freight.

In some other market the rev[illegible] situation may prevail. Com[illegible] speaking, there are a limited [illegible] of profitable varieties to grow a[illegible] producer should ask himself if he [illegible] growing what is demanded or if he [illegible] trying to force the market to take wh[illegible] he produces. In a home orchard gr[illegible] what you will, but for a profitable [illegible] come it is a case of the "public [illegible] pleased." The buyer wants what [illegible] wants when he wants it. Where [illegible] comes from how it got there or w[illegible] it cost to produce are, to h[illegible] n[illegible] of small consequence.

FARMERS FEATURE RADIO

Of 1200 representative far[illegible] re[illegible]cently questioned by the U. S. De[illegible]ment of Agriculture more th[illegible] 5[illegible] cent reported they owned t[illegible] sets employing three or more [illegible] a large percentage reported [illegible]own home made sets ranging from [illegible] crystal detectors to tube sets.

FREE FARM BUREAU MOVIES

Thousands of persons in [illegible] f[illegible] rural districts and small towns h[illegible] witnessed the official Farm B[illegible]r[illegible] motion picture exhibition show[illegible] by t[illegible] State Federation. In conne[illegible] w[illegible] education pictures, was show[illegible] a f[illegible]ture dealing with the captu[illegible] of w[illegible] animals in the African jungles.

Red E Power Cultivator

Endorsed by leading gardeners and fruit growers

Will work as slow as 80 feet per minute. Does light plowing, prepares seed beds and seeds and cultivates 3 rows at one time. Works between wide row crops. Ideal for small fruits and nursery work, has Planet Jr. wheel hoe and light horse tools. Mows lawns. Does stationary power work and hauls light loads. Automatic steering device—dust-proof working parts. 4-h.p. 4-cycle gasoline engine. Bosch magneto. Uses many parts used on well-known low-priced auto. *One year guarantee.* Write for literature and prices.

M. B. M. Manufacturing Co.

396 Reed Street MILWAUKEE, WIS.

Your name and address neatly printed on splendid correspondence stationery 200 Sheets and 100 Envelopes

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Your money back without question if you are not entirely pleased.

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Add 10c if east of Mississippi or west of Denver.

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RAISE BLACK SILVER FOXES

MOST PROFITABLE BUSINESS KNOWN

Easy to raise. Highly interesting. Unlimited market. Unusual profits. You can become a successful fox rancher. *Full information gladly given.*

Rest Island Silver Fox Farms, Inc. (Largest in the World)

SAN FRANCISCO OFFICE, 618 PACIFIC BLDG.

MONEY IN GRAIN

$12.50 buys guarantee option on 10,000 bushels of wheat or corn. *No Further Risk.* A movement of 5c from option price gives you an opportunity to take $500; 4c, $400; 3c, $300, etc. WRITE TODAY FOR PARTICULARS and FREE MARKET LETTER.

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PRINTED STATIONERY $1 add 10c. East of Denver & outside U. S.

Your Name Printed Compels Attention—200 SHEETS GOOD WHITE BOND, 6x7 & 100 ENVELOPES TO MATCH, NEATLY PRINTED IN RICH, DARK BLUE INK. AN IDEAL GIFT FOR YOUR FRIEND. THIS HOUSEHOLD STATIONERY USED IN BETTER HOMES EVERYWHERE. WRITE COPY PLAINLY. 4 lines only. REMIT WITH ORDER. MONEY REFUNDED IF NOT PLEASED. A. J. BAUMANN

268 Market Street San Francisco, California

Most Remarkable Offer

'Little Wonder' FIELD AND Opera GLASS $1.75 Only

Beautifully Nickel Plated

We are offering you one of the most bea[illegible] finest quality Field and Opera GLASS at a pr[illegible] that when buying somewhere else, you w[illegible] have [illegible] pay 3 or 4 times as much. We guarantee [illegible] to be the lowest in the U. S. because we import them ourselves, and are offering them to y[illegible] a practically a fraction of its actual worth. This glass is beautifully finished, all metal par[illegible] nickel plated, covered with fine quality im[illegible] leather. Is 3½ inches extended and 2½ [illegible] when closed and is equipped with powerf[illegible] which will enable you to see objects miles a[illegible] Most useful for camping, hunting or [illegible] ing livestock out in the pasture. Use [illegible] opera glass for movies or opera. Com[illegible] beautiful plush lined presentation case [illegible] advertising price $1.75, while supply lasts.

SEND NO MONEY

Pay postman $1.75 plus postage on delivery. Money refunded if not sat[illegible]

American Bargain House, Dept. B-36 79 Fourth Avenue New York N. Y.

100 GLADIOLI BULBS MEDIUM $1.50

A special advertising offer to make known the quality of our selected stock

Every conceivable color in the Gladioli kingdom is included. These bulbs are exactly the same as the high class florist uses. They are medium size but the flowers are full size. Plant from December to April. Blossom from May to September. You can secure this assortment from your florist or direct from us.

SEND NO MONEY

LOS ROBLES CO

HOME FARM HAPPENINGS

By ONE OF US

THE RAIN FINALLY CAME.

I knew we would have rain, sooner or later; there never was a crop failure in the Sacramento Valley," said one amateur weather forecaster at Butte City — after the rain.

W. S. GUILFORD

Before that there were several old timers—real old—so old they can say anything they want to and no one can dispute them, because they were here first—told about some season along about 1864, when it did not rain at all, and was so dry all the antelope starved to death.

And this, of course, increased the gloom among sheep men and grain farmers when they were already gloomy enough.

But the rain did come—lots of it—and the country is beautiful. Grain promises a big crop and feed is coming fast.

SOWS EAT YOUNG LAMBS.

Many sheepmen are great poachers—stealing feed is a fine art with them—and some folks have more hogs than they can feed, so turn them out to rustle for themselves.

Both sheep and hogs do all right anywhere as long as the feed lasts. But when they come together there is trouble.

A couple of old sows got in with a bunch of lambing ewes near here recently and added tender young lambs to their bill of fare. Moral: Don't run sows and lambing ewes in the same field.

FOX TAIL—BLESSED AND CURSED.

It all depends on the season. Right now stockmen all over the Sacramento Valley are blessing fox tail grass.

Hosea Turman, veteran livestock authority says it is the most valuable grass we have because it always comes when we need grass the most.

There is a thick carpet of it everywhere now—and it makes wonderfully rapid growth. But after it dries up and goes to seed and the beards get in the lambs' and pigs' eyes, it will be a different story.

A DEEP ECONOMIC PROBLEM.

"What animal or insect is the most beneficial to man?" asks Editor [illegible] Morris of the Colusa Herald.

And the wise farmers and scientists of these parts name almost everything from the cow to the house fly. "Earth worms," says Morris—and proceeds to quote authorities to prove it.

"That may be true some places, but there are no earth worms around this town," remarks Archie Davison, the druggist. "I've been hunting them for fish bait for years and there are none to be found."

HOGS KEPT AT CAMPS.

At every camp where work is going on a few hogs are kept—generally a sow and a litter.

The cost of keeping them is almost nothing and they profitably consume table waste that would otherwise be a nuisance.

Instead of scrub hogs we use registered animals for this job; they are just as good to eat, and when the demand for registered hogs comes around [illegible] again, as it will, the best of these litter will bring a nice margin over the price of pork.

Some hogs that are kept in small [illegible] and get a wide variety of feed develop into splendid individuals—far [illegible] animals in larger droves—and more restricted rations.

SHROPSHIRE BREEDER COMING.

Capt. F. Brian Bibby, one of the [illegible] Shropshire sheep breeders of [illegible] will visit his brother [illegible] in America this spring, beginning at the Pacific Coast and going [illegible] information received from John M. White, secretary of the [illegible] Association.

[illegible] good [illegible] Coast, [illegible] Bibby [illegible] our conditions for producing Shropshires.

Entertainment for the distinguished visitor will be provided by the California Shropshire Breeders' Association while he is here. Our genial secretary, Prof. "Bob" Miller, is arranging a little meeting and banquet for the distinguished guest.

LOW PRICED EGGS STORED.

Eggs are cheap—and plentiful.

Each year we put some eggs in water glass in stone jars to use when the hens do not lay—and this job is being started now.

The weather is cool and the eggs should go into the solution in better condition than later in the season, although we have never had any trouble keeping them.

WANTS PLENTY OF MOISTURE.

Harry Williams has plowed the Burton and Moody prune orchard, doing a fine job. He had prepared to irrigate before the rain came. But by the middle of January the moisture was down more than three feet, and the soil in perfect condition to work.

Harry believes in lots of moisture for growing prunes—says one must have it to get big crops of big fruit.

Consider Pollination in Buying Trees

THERE is much experimental and observational evidence to the effect that most of our deciduous fruits are in need of cross pollination and certain bad results are likely to follow the planting of any variety in large blocks by itself.

The value of interplanting the tract with two or more varieties in the case of almonds, pears, cherries and plums, has been shown clearly by Tufts and Hendrickson of the University of California, and any one planting fruits of these kinds without taking advantage of the findings of these men, would be neglecting an opportunity that might mean the difference between success and failure.

While the effect of cross pollination is seen in the increase of production as proved by the above mentioned experiments, there is another effect that is worthy of consideration, and that is the tendency of properly fertilized fruits to adhere to the trees. Dropping during wind storms sometimes is so heavy that severe losses are suffered, and it is only in the case of fruits properly fertilized that such losses are reduced to a minimum.

Farm Adviser Hodgson of Los Angeles County reports that in the Antelope Valley, near Palmdale, certain orchards of Bartlett pears, where losses from wind storms were very heavy at one time, have held their crops remarkably well since the introduction of grafting, of other varieties, such as Winter Nelis. The safest rule to follow is to plant no single variety of deciduous fruit alone in large blocks. If one variety is to constitute the major planting, the pollinizer should occupy every fifth or sixth row.—GEORGE P. WELDON.

Pompelmous Grapefruit

A READER wants to know what is the difference between grapefruit, pomelo, shaddock and pompelmous. "Pomelo" is the correct name for grapefruit, which acquired the latter name because it grows in clusters, something like grapes.

A citrus fruit first brought over from the East Indies by Captain Shaddock received the latter's name. It is a kind of grapefruit, ranging in size from a large orange to a pompelmous, which sometimes attains a diameter of eight inches.

DEHYDRATOR IDEA IS SPREADING

At least seven dehydrating plants have been installed in Tulare County during the past year, agricultural officials assert. Several more outfits have been ordered for next drying season, it is said.

for Economical Transportation

CHEVROLET

Will Your Family Be Happy This Spring?

A low-priced, modern automobile like the Chevrolet has become indispensable to the American family of ordinary income. Without it they are prisoners on limited range—like hobbled horses in a pasture.

The inspiring beauties of Nature, the interesting and educational features of other places and other types of people and ways of living remain things to be read about, or seen dimly in cold photographs, until you are free to GO TO THEM at your convenience and pleasure.

Suppose you have definitely decided to buy a Chevrolet this Spring.

That does not necessarily mean you are going to get it.

Anyone posted on conditions in the automobile business will tell you that thousands of families are going to be unable to get cars this Spring. That has been true almost every Spring for the last ten years, but the shortage in April, May and June, this year, is going to be more serious than ever before.

There are just two ways of making sure of getting your Chevrolet for use when the flowers and balmy breezes of Spring lure you to the country roads:

Buy it NOW, or order it NOW.

If you do not want to pay for it in full at this time, any Chevrolet dealer will arrange terms to suit your convenience, so you can *pay as you ride.*

You will be surprised to learn how easy it is to pay for a Chevrolet and to get possession and use of it.

The only way to be sure of a Chevrolet this Spring is to order it NOW.

Chevrolet Motor Company, Detroit, Michigan

Division of General Motors Corporation

Prices f. o. b. Flint, Michigan

Superior Roadster	$490	Superior Sedan	$795
Superior Touring	495	Superior Commercial Chassis	395
Superior Utility Coupe	640	Superior Light Delivery	495
Superior 4-Pass. Coupe	725	Utility Express Truck Chassis	550

Fisher Bodies on all closed models

Five United States manufacturing plants, seven assembly plants and two Canadian plants give Chevrolet the largest production capacity in the world for high-grade cars and make possible our low prices. Dealers and Service Stations everywhere. Applications will be considered from high grade men only, for territory not adequately covered.

Successful Methods of Oregon Poultryman

Pedigreed Chicks and 200-Egg Hens Bring Gratifying Financial Reward

By W. J. DRYDEN

A SPLENDID example of winning success by hard work can be found at the Brownell poultry farm, Milwaukie, Oregon. At the time the United States entered the European war, young Brownell had just finished a course at Reed College, Portland, where he not only excelled in studies, but was recognized as a leader, being chosen president of the student body.

He enlisted in the Oregon Engineers and soon after arriving in France was transferred to the range-finding division of the army. In keeping with his temperament—which leads him to work out everything for himself—Brownell carefully studied the American, French and British systems of locating enemy guns by sound. It was not long until he had formulated a method, which was adopted not only by the American, but the French and British governments as well.

Returning to Oregon after the war, Brownell started in the poultry business, with little capital, on a small place near Milwaukie, but soon was forced to sell out, on account of the death of his father, Judge Brownell.

In 1921, he moved to the old family home near by.

BUILDS VALUABLE PLANT

Since then Brownell has built up an egg and chick plant valued at $52,000. This is counting twenty acres of land at $800 per acre; residence, $10,000; outbuildings, $2500; livestock, $500; automobile, $700; fences, $1000; water system, $800; road improvements, $500. The rest of the value is in poultry, chicken houses and holly land.

Upon this property Brownell erected one of the most modern and best-constructed poultry houses on the Pacific Coast. The construction cost was about $18.50 per foot of building length. Midway in the structure is a large straw shed, work room and storage space, while two feed rooms are built between other sections of the house.

The building is 316 feet long and 22 feet wide, being considerably wider than most Western poultry houses. It is arranged with two pullet rooms, size 22x60, and two for breeders of similar size. One feed room is 22x20 and the other twice as large, while the straw shed and work shop is 36x36.

A feature of this modern poultry house is the absence of any place where dust, cobwebs or other dirt can gather. There is no place where the hens can sit, except upon their roosting boards.

SEVERAL IMPROVED FEATURES

New features include one-section trapnests, green feed troughs which slide under dropping boards, running water with large galvanized iron overflow troughs; dry and wet mash, shell, grit, charcoal and other hoppers in front of the house, to permit filling without entering the building.

In addition to this large laying house, there are eight brooder houses, 8x12 feet; eight colony houses, 6x12 feet; several special mating units, 8x8 feet, and 12x12 cockerel houses. The brooder houses were built at a cost of $75 each, including stoves; the range shelters cost $18 each, the mating units $25 and the cockerel houses $35 apiece.

The pedigree chick business is a prominent feature of the Brownell farm. Beginning next year, he expects to pedigree thousands of chicks, for most of which he already has received orders.

CHICK BROODING SYSTEM

In describing his system of taking care of young chicks, Brownell says:

"I prefer to brood in flocks of not more than 300, using a portable colony house, 8x12 feet. I use a simple, coal-burning brooder stove, which is practically fool-proof. The chicks are turned out on the sod within a few days after leaving the shell. My cooling room is the great outdoors, a wonderful developing place.

"The colony houses are moved once or twice during eight or nine months, after which a complete change is made. The pullets are moved to free range quarters and placed in wire-covered shelters until their adventurous wings carry them to high tree limbs. Nature's trees are the first and best poultry houses, as they keep birds clean and out of danger.

"I start the young chicks off with a little fine gravel. They also are given sour milk or buttermilk about 60 to 72 hours after the batch is completed. The chicks are kept in shipping boxes during this period, to rest them and prevent mischief. The first feeds are followed by light grain rations every two hours for about a week or ten days, when mash is added to the ration.

MASH REPLACES MILK

"Mash is fed dry and for a limited time only during the day, beginning with two 15-minute feeds," explains Brownell. "With the addition of commercial chick mash I reduce the amount of milk needed, but keep plenty of clean, fresh water before the birds at all times. I seldom find it necessary to feed greens, as the chicks are raised on clover sod and other fresh forage."

An abundance of heat is provided, as the chicks need a chance to warm up quickly after running out doors, often in wet, cold grass.

The brooder yards are arranged so that the same ground is used only once every four years, the purpose being to reduce contamination to the zero point. There are seven acres of range for pullets, in addition to the creek bottom and a woods pasture.

After looking over Brownell's trapnest records and examining his birds and the conditions under which they are kept, there is no doubt but what his hens will average 200 eggs this year, compared to 187 in 1921-22 and 194 during the following season. Production is calculated by dividing the total egg yield for the best twelve months of the pullet year by the total number of pullets selected and banded in the fall.

DESCRIBES BREEDING GOAL

Brownell gives the following as his breeding goal:

"Uniformity, broad backs, slab sides, intelligent heads, medium combs and long keel. I also specify strong, vigorous, range-raised stock, free from worms and intestinal inflammation; properly nourished and well-housed birds.

"A steady, substantial increase in flock production also is aimed at. I strive for uniform, standard eggs, which I get by careful selection and mating of stock. A steady decrease in flock mortality is obtained by vigorous culling and sanitation, yard crop rotation, and clean, wholesome feeds."

Each year Brownell plans to produce 1200 pullets, and with the aid of trapnests, cull this number to 900, which is 450 for each unit of the pullet-laying house. This allows three square feet of floor space for each bird. In addition to these pullets, 750 matured breeders are to be kept each winter and about 100 cockerels.

USING ELECTRIC LIGHTS

Brownell uses, for the pullets only, a maximum lighting schedule of twelve hours, 5 till 5. He has decided that the effect of artificial light is distinctly beneficial, the birds being brighter, more active and more easily handled than when forced to remain on the roosts through long, cold winter nights. With lights used moderately, he believes that flesh can be kept on a flock of heavy-laying pullets and that they can weather many a freezing cold spell without mortality or lessened production.

Brownell does not find that electric lights appreciably affect the total of the year's lay, but produce an even, consistent production throughout the high-price months of fall and early winter. His hens slump during the cheap storage egg season, but this rest only builds them up for a sustained production on a rising market, later on.

In feeding mature birds, Brownell follows the rule of feeding according to appetite; that is, in proportion to their rate of production and weather conditions. He feeds a light "exercise" grain ration in the morning, with a heavy grain feed in the evening, a little more than the birds will clean up before roosting time. For greens he figures on eight to twelve pounds per hundred birds. Dry egg mash is kept before the birds constantly. Wet mash is used as a trump card to check failing production.

PRODUCES PREMIUM EGGS

The chickens also are supplied with fresh oyster shell, sifted free from dust, ground bone, granulated and graded charcoal of medium size and commercial grit, sand and gravel.

The large size of his eggs, which reflects superior breeding, feeding and management, should be a source of great satisfaction to Brownell. The shells are chalk white and of uniformly good texture. Five dozen Brownell eggs entered in the Pacific International Livestock Exposition won five ribbons—one first, two seconds and two thirds.

This fine modern home affords good evidence of the substantial character of the poultry business. Brownell ranch near Milwaukee, Oregon.

Above—View of pullet house, showing yards and runways, at Brownell ranch. In addition, there are many colony houses.

Right—Front view of main building, showing troughs for wet and dry mash.

Black Giant Capons

F. L. GIBSON, who has 300 Black Giant chickens on his ranch at Carlsbad (San Diego County), believes good money could be made in raising these birds for capons, if the public were educated to the value of caponized chicken meat. Gibson expects to get 60 cents a pound for his Giant capons, which seems like a high price but—

"Similar birds bring up to 90 cents in Philadelphia and sometimes over $1 in Boston," he states.

"The Black Giant is an offshoot of the Jersey Black," explains the Carlsbad caponizer. "They are a little heavier than the parent breed and dress white, while the Jerseys dress yellow. There are no pin feathers in the dressed birds of either breed."

Fall hatched cockerels make fine Thanksgiving capons, which at that time weigh 10 to 12 pounds each. Caponized Giants have been known to weigh 20 pounds.

Cockerels of this prize meat breed weigh four pounds at four months, which takes them out of the broiler class, also out of the broiler pen into the fryer yard, three pounds being considered the dividing line between the two meat sizes.

"Do the Giant hens lay? I should say so," exclaimed Gibson, in answer to a query. "They begin early and lay late, getting down to business after dropping only two or three pullet eggs. A half dozen eggs of the mature hens weigh a pound. A Los Angeles year-old Giant hen weighs 11 pounds and still lays regularly."

ORCHARD and FARM

MARCH 30, 1924

Selection and Identification of Root Stocks

By MYER J. HEPPNER
Assistant in Pomology, University of California

SELECTING proper root stocks for the various species of deciduous fruits is one of the greatest problems confronting California horticulturists today. To secure stocks suited to various environments, which at the same time are resistant to plant pests, is a very important matter.

For example, the calcareous nature of the subsoil in some sections renders pear leaves chlorotic. Certain root stocks have been found more resistant to chlorosis than others. Pear blight and oak root fungus present other problems. While no satisfactory methods for the control of these diseases have been found, the remedy may be discovered in the selection of proper root stocks.

One of the chief difficulties encountered in root stock investigations has been the lack of proper methods of identification. In many cases growers attribute the success or failure of their trees to the root stock used. Growers, however, are not positive which root stocks they are using. An orchardist may think his trees are on a certain stock, when in reality they are on some other stock.

Infrequently, nurserymen sell trees which have been grown on a stock other than that which was ordered. In order to solve some of these difficulties the writer has worked out a simple means of identifying the various root stocks used for the stone fruits.

Owing to the success with which the apricot can be budded on various stocks it has a wide range of adaptation to different soils. The best all-round stock is the apricot seedling, especially on deep, rich, well-drained, heavy soils. If the soil has a tendency to become too dry or too moist, the apricot root should not be used.

Where the soil is light, well drained and dry, the peach root seems to give the best results for growing apricots. It is claimed by some orchardists that when the peach root is used the tree makes a quick growth and comes into fruiting early. The fact that the gopher does not like the peach root is another point in its favor.

The Myrobalan plum root is used to adapt the apricot to the soils that are too wet for the apricot or the peach. It is used also where a light soil is underlaid with a heavy retentive subsoil. This is the only root used for the apricot that can endure standing water.

Although the apricot has been budded successfully on the almond root, the latter is not recommended as a root stock. In most cases the union is poor, and it is only a few years before breakage occurs at the point of union, due to strong winds.

COLORS OF ROOT STOCKS

The apricot root can be distinguished from the peach and Myrobalan plum by the former's beet-red color. Although the peach root may attain a reddish color when the root becomes several years old, it is not the same shade as that of the apricot. Young peach roots are always bright yellow, the color changing to dull red as the root develops. The Myrobalan plum root is always brown in color, no matter what the age.

There are only two root stocks of importance that are used in California for the almond—the almond seedling and the peach. The almond root is used where the soil, moisture and drainage conditions are most desirable. It will live in comparatively dry soils, but does not make a large tree or bear crops of nuts if arid conditions continue. It seems to carry the tree over dry seasons much better than any other stock.

The peach root is used where the moisture content of the soil varies from time to time during the season, or where the soil moisture is quite variable in different portions of the soil. The peach root also does better on shallow soils or where hardpan occurs at a relatively shallow depth. Where irrigation is practiced during the summer it seems to do better than the almond root.

PLUM MAKES POOR UNION

The Myrobalan plum and apricot also have been used as stocks for the almond but with little success. Both make a poor union, and for this reason have been abandoned as stocks for the almond.

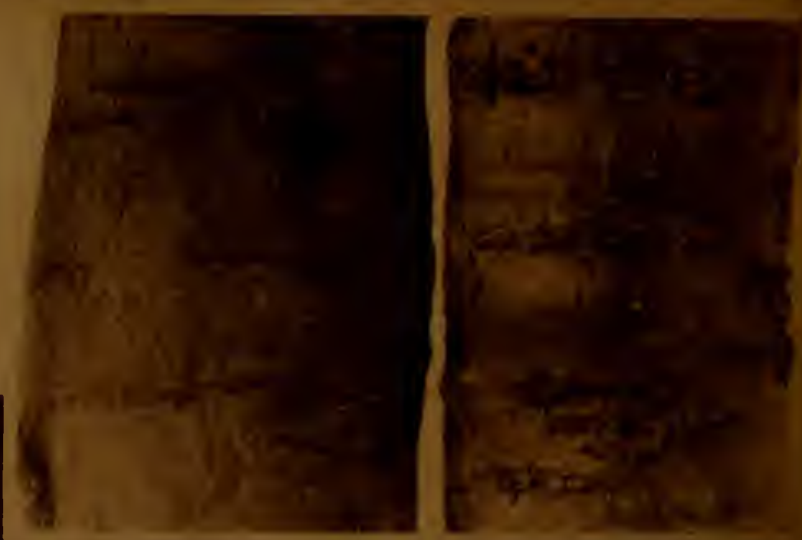
Almond and peach roots may be distinguished by any one of three characteristics: (1) The surface of the peach root is smooth, while that of the almond is rough; (2) if the root is cut one can notice that the bark of the almond is relatively thin and that of the peach is about twice that of the almond; (3) if a peach root is cut horizontally and examined it will be noticed that the sap openings (water tubes) are scattered regularly throughout the entire wood. If an almond root is examined it will be found that these openings are arranged in more distinct rings.

A large percentage of California cherry trees are propagated by budding on the Mazzard root. The other stock used is Mahaleb. Where conditions are proper the Mazzard seems to be the better stock. The most important advantage of the Mahaleb over the Mazzard is its hardiness.

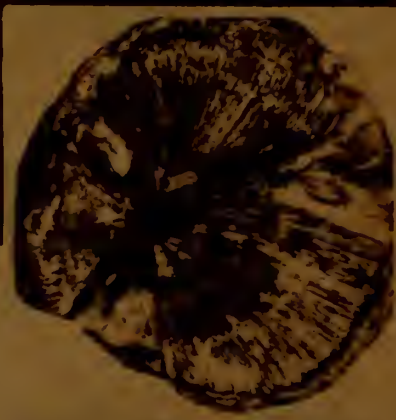
Some growers (Continued on Page 8)

This illustration indicates the manner of distribution of water ducts (tracheae) in wood of almond root.

Showing manner of distribution of water ducts in wood of peach root. Note gradual diminution in each ring.



Above is shown the external difference between almond and peach roots. Note rough bark of almond and smooth nature of peach; also rough ridges (lenticels) on peach root.



Above and below—Result of grafting apricot on almond. Breakage by wind showed wood did not knit.

Below is striking evidence of variation in thickness of bark. Note that peach bark is about twice the thickness of almond bark.

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
MARCH 30, 1924

Tree Doctors Placed Under Regulation in South

Growers Demand and Secure Protection Against Incompetent Operators—Important and Significant Horticultural Development

By ROBERT W. HODGSON
Agricultural Extension Service, University of California

WITHOUT doubt the most important and significant development of recent months in citrus circles was the joint action taken by the Horticultural Commissioners of Los Angeles, Orange, Riverside and San Bernardino Counties, placing the treatment of the principal trunk and root diseases of citrus trees under regulation.

ROBT W HODGSON

Although the advisability of such action has been under discussion for several years, the actual placing under regulation of the "tree doctor" has aroused considerable comment and some complaint. However, the conditions leading to the action taken are analogous in character to those which caused the Horticultural Commission of the four counties above mentioned some years ago to place citrus tree fumigators under regulation, and more recently, persons spraying citrus trees for control of pests.

The basic, underlying reason for regulating the operations of persons fumigating, spraying and treating citrus trees for trunk and root diseases is protection to the grower against ignorant or unscrupulous operators, who either do not know how successfully to control the pests and diseases they are treating, or do not care what damage is done.

The necessity for such action arises from the fact that in the very nature of the situation, it is impossible as well as impracticable for every citrus grower to do his own work or to have it done under his own direct supervision, as well as the further fact that the control of pests and diseases of citrus trees generally is admitted to be fundamental to the profitable production of citrus fruits.

Fumigation and spraying long since have come to be highly specialized operations, which, in order to me carried out effectively and economically, require special training and skill. It has been recognized, therefore, that there is a legitimate field for the commercial fumigator and sprayer, and the existence of this important field of operations is clearly reflected in the fact that in the four counties above mentioned several hundred fumigators and sprayers now are under license. The necessity for protecting the grower against unsatisfactory work possible injury to his trees and exorbitant charges has also been clearly recognized and has been responsible for placing the fumigators and sprayers under regulation.

AN IMPORTANT PROBLEM

During the past ten years there has been rapidly growing recognition of the importance of trunk and root diseases as a serious factor limiting the profits made in citrus fruit production. Among leading growers there is now rather general agreement that the largest single factor responsible for lack of individual tree efficiency is trunk and root disease.

Until quite recently, successful methods of treatment were unknown. Within the past decade, however, largely through the work of Dr. H. S. Fawcett of the Division of Plant Pathology of the Citrus Experiment Station, tremendous advances have been made in [illegible]ing successful methods of treatment.

The work done along these lines by Dr. Fawcett today is generally recognized among scientists the world over as the foremost of its kind ever carried [illegible]. Both in the technique of investigational methods as well as in the dis[illegible] of causes and successful treatment [illegible] Dr. Fawcett is by general con[illegible] acknowledged the world authority. [illegible] the past five years, largely through the medium of the County Farm Advisors, Dr Fawcett's methods of treatment have been put into use on [illegible] and gradually there has developed a legitimate field of operations for persons especially qualified to [illegible] diseases. A considerable [illegible] so-called "tree doctors" have [illegible] the opportunity for doing [illegible] have gone into the business [illegible]

[illegible] for growers however [illegible] have been very poorly trained. Others have claimed to have superior knowledge of both causes and treatment, and in all too many cases either little or no benefit has resulted from the treatment, or else actual injury has occurred. Growers generally agree that the charges for such work have been frequently exorbitant.

(1) Successful treatment of lemon shellbark in early stages. (2) Drastic treatment of orange scaly bark, two seasons' standing, apparently a complete cure. (3) Detail of untreated case (advanced) of orange scalybark. (4) Drastic treatment of one year's standing. Old bark removed but healthy new bark formed; tree apparently well on way to recovery. This is method employed by J. S. Perry of Covina (Los Angeles County).

CONDITIONS CORRECT

The rather rapid increase in the number ot tree doctors operating in citrus districts during the past two years and the serious losses experienced by some growers, coupled with the general economic situation existing in the industry since the freeze of 1922 all have operated to bring the matter of placing tree doctors under regulation to a head.

The result was that in 1923 the Citrus Growers' Department of the Los Angeles County Farm Bureau conducted a survey covering the work of tree doctors in the citrus districts of the county and finally recommended to the County Horticultural Commissioner that as a means of protection to the growers, all tree doctors operating in Los Angeles County should be placed under regulation

A similar movement was conducted by the Citrus Growers' committee of the Orange County Farm Bureau. After giving the matter careful consideration, the Horticultural Commissioners of the four principal citrus producing counties decided to take regulatory action. As a consequence the treatment of the two principal trunk and root diseases of citrus fruits brown rot gum disease and orange scalybark—now are under regulation in these counties. It is believed this action will result in saving thousands of dollars to the citrus growers, and quite generally the action has met with favor among the producers.

Naturally, however, there have been some misunderstandings, especially on the part of growers who desired some special treatment which is not in exact accord with the standards developed by Dr. Fawcett.

As the writer understands the situation, in all cases where growers in these four counties employ licensed tree doctors to treat these diseases, unless especially agreed to, the standard Fawcett treatments must be used. If, however, the grower desires to have his trees treated by some special method which either he or someone else has developed, such treatment can be used. The responsibility for the results, however, in this case falls on the grower and not on the tree doctor or the regulatory agencies.

DEBATABLE TREATMENTS

It is natural that, as in the case of practically all other cultural operations, new and improved methods constantly are being developed. It is likely there will he developments from time to time in successful methods of treatment for trunk and root diseases. Unquestionably, as these occur and are demonstrated to be successful, they will gradually be added to the standard treatments recommended, or possibly supplant them.

At the present time the status of certain methods of treatments is a debatable question, especially in the case of orange scalybark and lemon shell bark disease. In the treatment of brown rot gum disease there is general agreement that the methods developed hy Dr. Fawcett are much superior to anything in use in the past and successful to a degree which satisfies practically all growers.

With orange scalybark disease, however, the situation is not quite so satisfactory. Dr. Fawcett has not yet announced the specific causal organism or organisms responsible for the disease which, of course, permits of wide speculation.

There is general agreement that Dr. Fawcett's method of treatment for the first stages of the disease is completely successful and also that the treatment measures recommended by him for trees in advanced stages of the disease are decidedly beneficial and frequently completely successful. Failure to secure success in all stages of the disease, however, has caused some tree doctors and many growers to be somewhat dissatisfied with the methods advocated.

The work of certain operators who have used much more drastic treatment methods with apparently notable success, at least in certain cases, has met with considerable favor among growers in some sections. As further knowledge is gained concerning the conditions under which the more drastic treatment measures may be safely applied, it is not at all inconceivable that these eventually may he sufficiently well understood to render these treatments safe for common use.

DRASTIC TREATMENT USED

The drastic method of orange scalybark treatment which has received the most favorable comment consists in the entire removal of the diseased bark, no matter how large the extent may be, even to the point of completely girdling the tree for several feet. In a surprising number of cases this method has been apparently successful and it appears that at certain seasons of the year it may be possible thus to remove large areas of bark from the trunks of citrus trees with no injurious results.

In nearly all the cases the writer has examined what appears to be a healthy new bark has heen generated hy the cambium layer left at the time of removal. For the present, however, most assuredly the safest procedure for the average grower to follow is the use of the Fawcett method which for the advanced stages consists primarily of a thorough but light scraping of the bark.

In the case of lemon shell bark, the status of our present knowledge is perhaps even less satisfactory than with orange scalybark. Dr. Fawcett's latest recommendations state that in the early stages of the disease a thorough and light scraping appears to be beneficial. In the latter stages of the disease there is some question as to the advisability of growers going to the expense of removing the dead bark tissue. It does appear, however, that moderate to severe pruning is decidedly beneficial in this stage of the disease.

Unwrapped Fig Trees

"WHY didn't you wrap those fig trees?" a rancher with a one-year-old orchard was asked.

"The best wrap is well ripened wood," he replied. "I have seen too much injury done to wrapped citrus and fig trees to have any confidence in it. Trees which have stopped growing early and had a long period to ripen their wood will stand lots of cold, and if the wood is not ripened they will be hurt just as much as if they were not wrapped. In fact, they are often hurt more. Whether it is the handling they get or not, I do not know, but sometimes they are injured more than the others."

There may be a question about how much protection wrapping your trees gives. There can be no question but what well ripened wood is far more resistant to frost injury than soft, poorly matured wood.—TULARE FARMER.

Eagles Kill Many Lambs

HOW eagles used to carry off lambs was a common story many years ago, but sheep men of the west side of the Sacramento Valley have actually experienced serious losses this winter at lambing time. The eagles nest in the rough Coast Range mountains and have been raiding flocks in the valley miles out. Certain sheep men have had to station men with guns to protect the young lambs.—TULARE FARMER.

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY
By THE EDITOR

IS DOBBIN ON THE TOBOGGAN?

Statistics showing the steady decrease in the horse population of America are quoted gleefully by automobile, truck and tractor manufacturers. And, although many delivery and trucking experts still swear by Old Dobbin for short hauls, it is true that the horse is becoming almost a curiosity on city streets.

On the other hand, the market for farm animals of draft and handy weights has strengthened considerably during the past two years. This is the result of economic conditions, and the return swing of the pendulum after it had gone to extremes on the tractor side during the war.

But there is still another factor which has done much to restore equine popularity. This is the fad for horseback riding in cities. Dr. A. J. Ochsner, president of the American College of Surgeons, himself an enthusiastic horseman, has written a book, "Riding For Men Who Do the World's Work," in which this exercise is called the "Real Fountain of Youth."

Chicago now has between 175 and 200 miles of bridle paths, suburban roads and woodland trails used by those who ride for health and recreation. Business leaders and society folk in all parts of the United States are making a veritable fad of this ancient and healthful recreation.

Much of the credit for the stimulation of horsemanship is due the Horse Association of America, and has been inspired by the untiring work of Wayne Dinsmore, its secretary, whom we now nominate "The best friend the horse ever had."

CALIFORNIA—"THE HORSE LOVER'S PARADISE"

Here in California Nature seemingly has conspired to create ideal conditions for the breeding, training, and riding of saddle horses.

But our cities have not done as much as they should towards providing bridle paths safe from the rush and noise of motor traffic. Except in suburban and country districts, lovers of equestrianism find their daily canter restricted to a limited route which grows irksome because of its sameness.

Considering the predicament of the city dwellers who would like to ride and can't, one cannot help wondering why more California farmers and fruit growers do not take advantage of their opportunities along this line—particularly in the more sparsely-settled communities.

Every farm where children are growing up should have a pony or two—and Dad and Mother should not let the family touring car wean them entirely away from the saddle!

Under present conditions, horseback riding among city dwellers is restricted largely to the wealthy classes who can afford to maintain stables and estates. Add one more, then to the blessings of country life, which, after all, help to offset its difficulties!

WHY DO WE HAVE VANDALS?

Every year officials of the Forest Service arrest vacationists for mutilating Government signs; usually the camper obeys a misguided impulse to inscribe his name or he may even post some indecent, profane phrase.

All farmers are familiar with this pest; he is the same one who leaves the gate open, scatters papers from his picnic lunch and then shoots holes in the "No Trespassing" sign by way of showing his independence. The cities seemingly send forth hundreds of his ilk.

Subduing for the moment our impulse to strangle him, let us consider "how he got that way." Undoubtedly his state of mind is the result of a warped viewpoint which goes back to his childhood training. Boys who are taught the sacredness of the possessions of others and whose minds are broadened by education do not become vandals.

LET US SERVE YOU

We want Examiner readers who are interested in any branch of agriculture to make every possible use of Orchard and Farm. Whether you want to advertise something for sale, buy land, secure help or accomplish any other object that can be achieved by advertising, or whether you simply want to ask questions concerning your problems (which we shall be glad to answer free of charge), please feel that this is your magazine and that our big ambition is to be of service to our subscribers.

WHAT'S NEW? Keeping Abreast of Agricultural Progress

Farmers Have Radio "Craze"

INDICATING the rapidly increasing popularity of the radio on American farms is a recent report from the United States Department of Agriculture, which as a result of a survey of 780 representative counties in all States, found that the farmers in these counties owned 40,000 radio sets. Applying the average to a total of 2850 agricultural counties, it is estimated there are now more than 145,000 sets on farms throughout the country!

School Milk Consumption

MORE than 100,000 half pints of milk were served in 88 San Francisco schools during one month recently, according to a report of the Supervisors. Nearly 10,000 children were served. Teachers are said to have determined definitely that milk drinkers are less susceptible to diphtheria and other diseases than those children which do not use milk. The California Dairy Council is responsible for much of the milk service now featured in the public and private schools of this State.

Summer Horticultural Courses

SUMMER Session Courses in subtropical horticulture will be offered this year for the first time by the University. These courses will be given in the laboratories of the Citrus Experiment Station at Riverside, Calif. The session will begin with registration on June 28, 1924, and will continue until August 9, 1924, a period of six weeks. The purpose of these courses primarily is to furnish University students and teachers of agriculture the opportunity to obtain training in these subjects in a region where this type of horticulture is regularly pursued.

New Acreage for Pickles

IN AN effort to extend cucumber plantings for the production of pickles and to secure sufficient acreage for the 1924 season, cucumber growers, manufacturers and representatives of the Agricultural Extension Service of Los Angeles County, met recently to work out some solution to the present unsatisfactory situation.

The acreage normally devoted to this crop has been greatly reduced due to subdivision, nematode infestation, oil development, and the operation of the anti-alien land law. As a result of this meeting, additional cucumber acreage has been secured in the San Gabriel Valley.

New Pear Blight Formula

GROWERS are expressing much interest in the new solution developed by Leonard Day of the University of California to take the place of the standard mercuric chloride and water formula. This is made up as follows: 16 large tablets of mercuric chloride, 16 large tablets mercuric cyanide dissolved in one quart of warm water to which is added three quarts of glycerin after the tablets are completely dissolved. The glycerin increases the viscosity and consequently the spreading and sticking qualities of the disinfectant. County agents are giving field demonstrations in its use, and are advocating early treatment during the active period which commences with the blossoming season.

Women in Livestock Work

THE increasing number of women engaged directly or indirectly in livestock work has attracted considerable attention. One of the best known sheep officials in America is Miss Julia M. Wade, Secretary of the American Shropshire Registry Association. A woman is secretary, also, of the National Swine Growers' Association. This well-posted officer, Miss G. A. Fossett, recently gave a radio address on "The Importance of the Swine Industry," which, broadcast from Station KYW in Chicago, was heard by thousands of radio "fans" all over the United States. "Women are taking part in our Government," points out Miss Fossett. "They are engaged also in business enterprises where a few years ago they feared to tread, so why shouldnt they take their place in the livestock and meat industry?"

Detecting Renewed Eggs

THE practice of certain egg dealers of removing the oil covering used for preservation and selling storage eggs as fresh must cease, according to U. S. Department of Agriculture, which has announced a method of detecting eggs so treated. Recently it has been discovered that a number of egg concerns have removed the oil coating by cleaning the eggs with a blast of fine sand or treating them in an alkali solution.

Importing Dairy Products

NOTWITHSTANDING California's huge dairy production, this State imports more than 10,000,000 pounds of butter, 9,000,000 pounds of cheese and 60,000 cases of condensed milk annually, according to a statement by Sam Greene, secretary-manager of the California Dairy Council. The importance of dairying in a new district is indicated by the statement of George Kreutzer, manager of the Durham State Land Colony, who asserts more than one-half the revenue to the farmers of this successful enterprise has come from dairy products.

Estimating Walnut Crop

WITH the co-operation of Prof. L. D. Batchelor of the Citrus Experiment Station (Riverside) Carlyle Thorpe, general manager of the California Walnut Growers' Association has worked out a plan for securing more accurate advance information as to the annual production. It is pointed out that wholesalers frequently sell more than 75 per cent of the nuts ordered before buying a single ton. This system of trading in futures may involve a loss of from $500,000 to $1,000,000 a year to the growers in case an inaccurate advance estimate results in a carry-over. Suitable prizes will be offered as a special incentive to encourage more accurate estimating on the part of individual producers and the various exchange districts.

L. A. County's Resources

BECAUSE it is the seat of a great city, Los Angeles County is not always given her place in the sun as an agricultural district in the heart of the County Farm Bureau. Hence a recent issue of the Farm Bureau magazine "tells the world" some interesting figures. The total production of California is given as $450,000,000, of which Los Angeles County claims $80,000,000. This tremendous valuation for the products of a single county is compared with the total production of a number of western States, as follows: Wyoming, $20,000,000; New Mexico, $26,100,000; Arizona, $36,239,000; Utah, $36,777,000; Nevada, $9,326,000; Idaho, $8[illegible]308,000. It will be seen Los Angeles County alone produces annually agricultural products greater in value than the combined production of Arizona, New Mexico and Nevada, these inveterate boosters point out.

This Week's Cover Design Points Moral

IT would have required a page three times the length of the ORCHARD and FARM cover to have pictured in its entirety the forest monarch of which part is shown on the first page of this number.

This giant Sequoia known as the Boole tree, stands in Fresno County, a few miles from the highway leading to the famed Kings River Canyon. It is nearly 350 feet high and has a circumference at the base of 138½ feet.

It is now a ward of the United States Government, having been saved by the Sierra Club of California.

Had it not been for the Sierra Club, the Save-the-Redwoods League and other public spirited organizations many of California's big trees, now preserved for posterity, would have fallen long ago.

They are recognized as the oldest living things on earth. When King Tut's body and his possessions were being sealed up in the Egyptian tomb, no doubt this tree already towered above surrounding vegetation.

But aside from mere sentimental considerations, California farmers and fruit growers should interest themselves in the protection of our forest wealth. A denuded watershed means thousands of dollars' loss to contiguous agricultural territory.

Let us all co-operate with Federal and State forest officials in their policy of conservation and reforestation. Preventing fires is one part of the work in which every one may assist. Unless late rains compensate for the drouth that has prevailed this season the fire menace will be more serious next summer than for years. Now is the time to resolve against carelessness.

This photograph is the work of J. F. Vaseventer of Orosi (Tulare County).

Improving Napa Co. Poultry

Formerly Unimportant Hen-and-Egg District Achieving Unusual Success by Grading and Selection

By ELAINE M. BERGLUND

IN THE old days the responsibility for laying eggs was entirely up to the hen. Today the breeder bears part of the burden.

So intense has the realization of the necessity of better breeding become, that promotion of the work is passing out of the hands of the individual into those of public officers. Alameda County started the good work by getting out a Certified Chick List. Sonoma County followed with an Accredited Hatchery List and among other counties which became interested in the work, Napa County developed a plan of her own.

Napa originated a "hatchery agreement" and to further it compiled what is known as the Napa County Farm Bureau Approved Breeders and Hatchery List.

The object of this list is to give prospective buyers the names of those breeders from whom they can purchase certified poultry stock. The requirements for members who belong to this list cover not only the use of pedigreed sires but also the proper care and feeding and settlement of the age of the fowls before they can be put into the breeding pens.

Before the compilation of this list, it was most difficult, if not at times impossible, to get pedigreed stock for breeding purposes; now, thanks to the close supervision of the Poultry Department of the Farm Bureau under the able guidance of the assistant farm adviser, W. H. Cudaback, the buyer has only to take advantage of the protection offered him by the list to be assured of pedigreed stock.

So much for the adult producers. But themselves are closely watching the club work.

One boy alone has had over 100 callers on his place. What is more and particularly unique, six commercial breeders made use of club roosters. Quick recognition of the quality of the club stock has been made by outside breeders as well. One large Petaluma hatcheryman alone, purchased 350 cockerels from the club members and some of these were pronounced among the best received in the Petaluma District.

From the commercial point of view, the club members have been well remunerated. They have learned that money can be made where the club instructions are followed closely. If they attend to business, they make money; if they neglect it, it is a matter of dollars and cents to them and they realize that it is due to their own carelessness that they have failed.

In seven cases, at the end of three months the boys and girls' profit based on their sales and inventory, was more than 150 per cent. To be exact, the net earnings for three months ranged as high as $100 on 100 chicks. Due to the high grade of their stock, they were able to get, in place of the ordinary price of 50 cents or under for a chick a little heavier than a broiler, the breeder's price of $2.

CLUB ENTERS CONTEST

Two entries from the Napa Club were made in the Santa Cruz Club Contest held for the first time this year. One entry made by the Napa County Elementary Pullet Raising Club carried off five blue ribbons. Further, the Napa Club still holds the record for the State

Here are ten unit leaders who have worked faithfully and without remuneration for the success of the Napa County plan. Standing, left to right—A. L. Hawke, John Cantoni, W. G. Waterhouse, Assistant State leader of clubs; B. F. Jackson, Oscar Struve, W. A. Guichard, P. J. Meroux. Seated, left to right—G. W. Danforth, Mrs. F. A. Austin, W. H Cudaback, Assistant Farm Adviser; Mrs. B. F. Jackson, Mrs. A. L. Hawke.

Mr. Cudaback's activities do not end with the grown ups. He believes in "takin' 'em young." Consequently he is as much concerned with the stimulation of better breeding among the youth of the county as among their elders.

With this end in mind, a Pullet Raising Club was established which all boys and girls between the ages of 10 and 18 years who were interested in poultry raising, were urged to join. The objects of this club were both educational and commercial. The instructive program in poultry raising mapped out by Mr. Cudaback for the boys and girls offers them the knowledge of an entire University course in poultry raising boiled down into a few practical rules and regulations. It is the aim to teach them the fundamental principles of the industry and to have them prove for themselves by demonstration the commercial value of this knowledge.

HIGH STANDARD MAINTAINED

To begin with, the stock standard is high. Club members must start with flocks having a trap-nest pedigree record of 200 eggs or better on the side of the dams and 250 eggs or better on the side of the sire's dams. These [illegible] were secured for the boys and girls by the Farm Bureau Committee from the certified list of bona fide breeders [illegible] a special price concession was [illegible]

[illegible] to the efforts of the club along [illegible] great deal of better poultry [illegible] is being received into Napa [illegible] county is making a name [illegible] grade stock and the [illegible] of the boys and girls is [illegible] the [illegible] r[illegible]s

with 490 eggs for the first four months, which is 27 eggs above the nearest competitor. To date the Napa Club has four out of the five highest hens.

Spurred on by the proved success of the club of one year's standing, Cudaback, since the first of January, has reorganized on an entirely new and much more elaborate basis. The boys and girls, who by the way have greatly increased in number, are all members of one county-wide club, but it has been subdivided into different groups which correspond to the various farm centers and are under the personal leadership of local club leaders.

These leaders, one from each farm center, were appointed at the suggestion of Mr. Cudaback and are in turn under the instruction and supervision of his office. The men and women thus chosen for this work are people of high standing, each in his own community, who have taken active part in the past affairs of their farm centers and who have in common their interest in boys and girls' work. They are voluntary leaders and are serving entirely without pecuniary remuneration for the good of the youth and the county.

UNITS TO BE JUDGED

Contests have been arranged for this year and the units will be judged as separate clubs. The winners will be presented with ribbons by the Napa County Farm Bureau Poultry Department and the highest member of the whole county will be given some kind of sweepstake hand or banner, the exact pattern of which has not yet been decided upon.

So with its Certified Breeders and Hatchery List for the adults and the Pullet Raising Club for the boys and girls, Napa County is forging ahead in the poultry business. Quality, in most enterprises the desired goal, has in this instance stimulated quantity.

Napa's attempt at better breeding has created such a widespread interest in poultry raising that the county, from having been a most indifferent poultry community with a low standard of fowls and eggs and consequently a low market price, has greatly increased the number as well as improved the class of fowls and egg production.

But—what means the most to the producer and is the final proof of the pudding—Napa at last has secured the same grading and the same market price from the large San Francisco wholesale dealers for its poultry products as that hitherto accorded to Petaluma. Success is the greatest encouragement in the world. Undoubtedly Napa County has come to stay in the poultry business.

California Fur Trails

MANY persons living in the northern and eastern parts of the United States think of Southern California as a land of sunshine and eternal summery things, says D. C. Retsloff, in Fur News and Outdoor World.

Trapping and fur hunting call up pictures of frozen countries; snow-banks and blustering winds; of forest regions and almost inaccessible mountain fastnesses.

But the ranch and mountain lands of Southern California really are good fur producing territories.

For the past six years Otis Hurley, a resident of the city of San Diego, has been trapping in the back country a few miles from the dwelling place of a population numbering 100,000, and making a living from the backs of furred folks.

Skunk, badger and wildcat skins are among those sent from San Diego to the fur markets of St. Louis, but coyotes furnish the bulk of the shipments. Mr. Hurley's trapping season started last year November first. When he checked up thirty days later he had 84 coyotes, eight skunks, one badger and three wildcats.

In St. Louis the skins bring him $3 each on the average. When they are dressed and dyed they will sell to the trade at from $30 to $75 apiece, depending on the ouality of fur in the individual skin.

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Every scientist and physician knows that gray hair is hair that has ceased to receive its normal supply of coloring matter or pigment from certain tiny cells in the scalp because these cells have become inactive from age, illness or some other cause. No matter what the cause, it is amazing to see how the grayness disappears when Kolor-Bak is used. It is a proved substitute for the natural hair pigmentation.

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American Poultry Jour'l, 476-523 Plymouth Ct., Chicago

Bananas As a California Crop

Florida Experimenter Insists It Is Simply a Matter of Finding Right Varieties

"BANANAS can be grown successfully in many parts of Southern California," says W. E. Bolles of Oldsmar (Florida), founder and secretary of the Florida Banana Growers' Association.

"I have received letters which say that it has been tried and has failed in California, but very likely some one tried the wrong varieties in the wrong way. There are about as many varieties of bananas as there are apples and grapes. We have found in Florida, where people have been growing bananas for 100 years or more, that the Musa Cavendishii (commonly called the Cavendish) and the Hart (sometimes called Hart's Choice, Ladyfinger and Golden Early) are the best commercial varieties.

The Orinoco variety is quite generally grown for home fruit. In the last five years there has been a very marked increase in banana planting in Florida in a commercial way, and more has been done in 1923 than in the last five years together.

"On my banana plantation, fifteen miles west of Tampa, in latitude 28, I have a large collection of varieties of bananas, including the above mentioned, and the red banana sometimes seen in fruit shops, the yellow Jamaica (or Martinique or Gros Michel) of which 43,000,000 bunches are shipped into the United States every year; also several rare varieties. I find that the Cavendish and the Hart are the best, not only for commercial purposes, but also for the home garden. Every family should grow its own, as so many do in Florida.

"The Canary Islands are in approximately latitude 30, which is about the same as that of Jacksonville, Florida, and the southern part of California, where in some of your valleys and other favorable locations you have good conditions which compensate for a slightly more northern latitude. The Canary Islands, as I have said, are big producers of bananas.

FROST NO HAZARD

"Even in Southern Georgia, Louisiana, Mississippi and Texas they grow some bananas and are planting more. If the leaves and trunks of the plants should freeze down, as they usually do in Georgia, the roots remain alive, throw up new shoots or suckers in the spring, produce fruit the coming fall, and freeze down again the following winter. The fruit in Georgia is cut off when full and green in the fall before frosts come, and taken into a fruit room to ripen. I mention these facts just to give information to those persons who may shake their heads about bananas in winter.

It is wise to mantain a thick mulch of dried vegetable matter and a dust mulch, if there is danger of damage from a cold wave. This will keep the roots alive even if the ground freezes near them. I have not had any personal experience with such a condition as that, but they tell me in Georgia the ground freezes, and the banana roots live through it when protected.

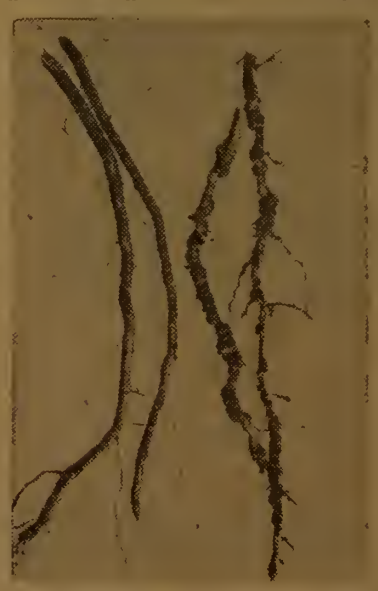
"The familiar tropical banana, which is the yellow Jamaica or Gros Michel, until recent years, has not appeared to thrive in sub-tropical or semi-tropical regions like Florida. I have been working with an apparently semi-hardy strain of this variety, and by careful selection and method of culture have produced large bunches, as free from disease and resistant to cool weather as the Cavendish and the Hart. They are much better shippers than the Cavendish and Hart."

[Editor's Note—Many banana plants are growing in California and in some districts edible fruit is produced. Varietal experiments so far have failed to bring results that would justify commercial planting. ORCHARD and FARM disclaims responsibility for the assertions made in this article but it is possible further experimenting might result in discoveries comparable to those the author asserts have been made in Florida.]

Apricots Nematode Proof

MAN is not the only animal who selects his food with care for among the lower forms of life we find many striking illustrations of the selective instinct as applied to the things which serve as food. There are, for example, certain insects which confine their feeding to one species of plant, or to closely related plants of the same family.

Observations which have been made on the well known eel worm—nematode



Left—Apricot roots, showing no sign of nematode infestation. Right—Peach root heavily infested, from tree grown in same nursery.

—to determine its host plants have shown that while this pest has a large number of hosts, including most of our fruit trees and cultivated plants of various sorts, it does seem to draw the line on certain things. In this connection the apricot apparently is immune, or at least very highly resistent to nematode attack.

In the monthly bulletin of the State Department of Agriculture may be found an article on this subject. The accompanying illustration is from a picture taken by the writer of the roots of two trees, one an apricot the other a peach, which were growing side by side in the nursery. In the case of the apricot roots there was absolutely no sign of infestation, while the peach roots were badly infested, as evidenced by small, knotty swellings.

These two trees were typical of many others of the two kinds growing near each other in the nursery and in no case was an apricot root found infested, while peach roots were commonly covered with the characteristic nematode swellings.

Since the apricot has a strong growing root which may be used in the propagation of the peach, there would be a decided advantage in planting both peach or apricot trees that had a root system of apricot in those sections where the nematode is a serious menace.—GEO. P. WELDON.

The New BULLETINS

AMONG new bulletins and circulars issued by the United States Department of Agriculture, the following are deserving of special mention. They may be obtained free on application to the Division of Publications, Department of Agriculture, Washington, D. C. Order by number:

Farmers' Bulletin

Natural and Artificial Brooding of Chickens 1375
Bridge Grafting 1379
Apple Scald and Its Control 1380
Growing Rye in the Western Half of the United States 1358
Buying a Farm in an Undeveloped Region ..... 1[illegible]

The following bulletins are published in limited editions only. Many requests will have to be referred to Superintendent of Documents, Washington, D. C., from whom they may be purchased at a nominal cost:

Department Bulletin

Flushing and Other Means of Increasing Lamb Yields 996
Field Experiments with Atmospheric Nitrogen Fertilizers 1185
Potash from Kelp 1191
Dusting and Spraying Peach Trees After Harvest for Control of the Plum Curculio 1205
An Economic Study of Family Living in Farm Homes 1214
Results of Experiments With Miscellaneous Substances Against the Chicken Mite 1227
Utilization of Pima Cotton 1184
Quarantine Procedure to Safeguard the Introduction of Citrus Plants—A System of Aseptic Plant Propagation 299

The following local bulletins can be procured by writing the College of Agriculture, Berkeley, California.

Bulletins

Turkish Tobacco Culture, Curing and Marketing 368
Fruit Beverage Investigations ..... 3[illegible]
Comparison of Woods for Butter Boxes ..... 36[illegible]

Circulars

Preliminary Essentials to Owner Tuberculosis Control in California 264
Cabbage Production in California 262
Tomato Production in California 262
Irrigation Practice in Growing Small Fruits in California 154
Small Fruit Culture in California 134
Pear By-Products ..... [illegible]
Unfermented Fruit Juices 224
Plant Disease and Pest Control 220
Construction of Farm Dehydrators in California 265

The following circulars by W. V. Cruess also may be obtained by writing the College of Agriculture, University of California, Berkeley:

Canning Fruits and Vegetables (Methods of Fruit Preservation I).
Fruit Juices and Jellies (Methods of Fruit Preservation II).
Drying Fruits and Vegetables (Methods of Fruit Preservation III).
Candying Fruit, Making Fruit Vinegar and Salting Vegetables (Methods of Food Preservation IV).

Use Bonded Warehouses

THE number of California bonded warehouses has increased so materially that two State inspectors are kept busy in the field maintaining an efficient inspection service, according to the State Department of Agriculture. These inspections are made for the purpose of checking outstanding warehouse receipts and quantity of goods on hand and assuring the maintenance of proper conditions in the operation of the warehouse.

The rapidly increasing interest of bankers in this important phase of the handling of our agricultural products will doubtless result in a material increase in the number of California bonded warehouses before September 1, 1924.

"The producer who is interested in having his goods properly protected by State supervision of warehouses and who is anxious to secure a warehouse receipt which will be readily accepted by all commercial banks as well as Federal financial institutions will insist that the warehouseman with whom he stores his goods secure a license as a California bonded warehouseman," Director Hecke points out. "The cost of securing such a license is very small and the benefits derived therefrom are of importance to the producer, the banker and the warehouseman."

BIG SHELLED ALMOND BUSINESS

The California Almond Growers' Exchange has developed a big business in "sheller run" nuts, according to T. C. Tucker, manager. This includes nuts as they come from the shelling machines, free from dust and shells, but ungraded and with whole or broken meats mixed together. These are used largely by Eastern manufacturers who pronounce them superior to the European article and who [illegible] larger quantities [illegible]

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BEE NOTES

By J. D. BIXBY SR.

ALUMINUM COMBS, PRO AND CON—Aluminum honeycombs are being used extensively in Texas and other sections where the temperature ranges high. Two of the serious defects of natural wax combs are avoided by using aluminum combs—damage by moths and by extremes of heat and cold. Their chief objection is the disinclination of the bees to breed in them, possibly because the metal is a ready conductor of heat, or at least more so than wax, making the combs seem cold.

J. D. BIXBY SR.

ALMOND NECTAR VALUABLE. Almonds are blooming freely all over the northern portion of California and probably a considerable surplus will be taken from the vicinity of large orchards. The almond is one of our most valuable sources of pollen, the most needed element, next to honey, of the bee's diet.

MANZANITA RANGES GOOD. Fair yields of excellent honey are reported from the Manzanita ranges of the northern counties. Possibly the most valuable service of the Manzanita is in building up the colonies for the later flows of honey.

HANDING FOUNDATION SHEETS. Put sheets of foundation on the bees during the early honey flows or at the beginning of the main flow. When your supers are full and the main flow is on is no time to put on sheets of foundation to be drawn out by the bees. If you have empty combs, however, you can alternate them with full sheets of foundation with very good results.

THE ARTIFICIAL COMB PROBLEM. The inventor of aluminum honeycombs is still at work on the problem of artificial combs. Paper of various kinds, as well as steel and other metals, preceded aluminum. Paper was too fibrous. The bees promptly tore it down, no matter how thoroughly waxed, while the moisture and acidity of the contents of the hive promptly corroded the steel and other metals.

REASONS FOR COMB HONEY. Several sections of California produce only comb honey because of the extreme dryness of the atmosphere. The honey is so thick and heavy that it cannot be thrown out of the cells without destroying the combs, and will speedily "rope" about the reel of the extractor, rendering it useless. The same condition prevails in most of our inter-mountain States. Good chance to try aluminum combs.

POLLEN DURING BREEDING SEASON—The value of pollen to the bee in the breeding season has proved itself to me more conclusively than ever this season. I have two apiaries, both well supplied with honey, one of which depends mainly upon annual plants—tarwee, mustard, burr clover etc.—for the supply of pollen. Owing to the great drouth there has been a scarcity of these plants this season.

The other apiary was supplied mainly by perennials—alders, willow, eucalyptus etc.—with scant forage on mustard and Windsor beans. The first will average only about one-half as many bees as the latter.

ASSOCIATION RESUMES BUSINESS—The Western Citrus-Honey Corporation has resumed business at Woodlake, Tulare County, Calif., under the management of a receiver. Two carloads and two truck loads of bees have been sent in from Nevada and several thousand colonies will be located there. With favorable weather a large crop of orange blossom honey is expected.

WATERING PLACE IMPORTANT. [illegible] that the bees have a handy watering place near the yard. Long [illegible] water is cool and windy [illegible] for the summer and fall months and be assured of storing enough to live on will be at a premium this year. Arrange for yours now. With no water for the lima bean ranges, no rains in the sage, and the aphis destroying the alfalfa, the outlook is not good.

ORANGE BLOSSOM PROSPECTS GOOD—Orange bloom promises to be normal, if not better, all over the citrus sections. The North is faring better than the South in the amount of rainfall. Star thistle is fairly promising in those sections of the Sacramento Valley where it is abundant.

THISTLE HONEY MAKES GOOD. Star thistle honey is fine in flavor, heavy in body, does not granulate readily and makes very white wax. Its color is good, though with a slight tinge of green, which has not prevented its becoming very popular against a somewhat prejudiced market. A few years ago to say "thistle," was to condemn any honey, East or West.

PREVENTING BLUE MOLD. Blue mold in beehives is caused by lack of ventilation. Moisture gets in by leakage, or from condensation when the bees are bringing in nectar, and all cracks being propolized up for winter, there is no way for it to escape.

A piece of honey section or a match stuck under the cover usually will give what ventilation is needed without admitting robbers.

TRANSFERRING COLONIES. Bees can be transferred at almost any season. Cut out the good worker combs and tie them into the new frames with small cotton twine. Transfer honey enough to keep the bees from starving.

Spray Young Peach Trees

WHILE the practice of spraying older and bearing peach trees annually in the spring has become general, the younger trees, one to three years of age, are very often neglected. There are some very good reasons for applying the lime sulfur spray the first season after planting, as well as later.

It is important that pruning, after trees have had one year's growth in the orchard, should result in the development of certain well placed framework branches. Such branches can only make their best development when nothing interferes with the growth of terminal buds.

The damage of the twig borer, which the spring spray of lime-sulfur effectively will control, is frequently the destruction of terminal buds and the injury has much the same effect on the growth of the branch as short pruning.

The killing of the twig borer, therefore, will result in the terminal development of the branches which the pruner selected and left because they were the most desirable for the scaffold or lower framework limbs. Likewise the curl leaf fungus may be controlled—a second good reason for treating the young as well as the older trees.—G. P. W.

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NOTICE We are booked to full capacity till April 22nd; can supply chicks on this date and every week after. Owing to the great demand for our chicks we will enlarge both our plant and hatchery, also increase our breeding stock for 1925, so book your orders early for next season. Largest W. L. breeder in Santa Cruz Co. WEBB'S CACKLE FARM, 227 Park Way, Santa Cruz.

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BABY CHICKS—White Leghorns. Hatches every week. Heavy-laying strain. Order now. $12 per hundred, $110 per thousand. STANFORD HATCHERY, R. F. D. No. 1, Box 42-A, Palo Alto, Calif.

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BABY CHICKS—W. Leghorns, B. Rocks and Mahogany Red. CHOWCHILLA ELECTRIC HATCHERY, Chowchilla, Calif.

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OUR 1924 CHICKS—Prices, Quality—delight new and regular customers alike. Capacity 300,000. White, Brown, Buff Leghorns; Anconas, Reds; Barred, White Rocks, Minorcas, Wyandottes, Brahmas, Andalusians, Orpingtons. From some of world's greatest layers reasonable. Reduced booked ahead. Half-booked for most spring weeks. They prove profitable. "Never saw such size, vigor, rapid growth, egg-yield." Write for proof. PROFITABLE POULTRY, 13 North Fair Oaks, Pasadena, Calif.

ORDER NOW White Leghorn baby chicks from purebred stock, Ferris strain. Only pedigreed cockerels of 228 to 301 egg records used. Also R. I. Reds, dark, large, heavy layers; make profitable broilers. Write for attractive prices on large or small orders. Satisfaction guaranteed. Anderson's Hatchery and Poultry Farm, Modesto, Calif.

PEERLESS WHITE WYANDOTTES, ATKINSON PEERLESS ANCONAS. I am originator and breeder of "Peerless" strain birds for 20 years. Leading prize winners at largest poultry shows. Official egg records, 2?? to 261 eggs. Mated pens, cockerels, hatching eggs. Illustrated catalog free. J. W. ATKINSON, Box 10, 130 So. Willard Ave., San Jose, California.

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OUR BACK-TO-LAND-PLAN—We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land, deep, rich, tried soil; complete irrigation with cheap water; thorough drainage; rail, water and highway transportation. Write owners, SUTTER BASIN COMPANY, California Fruit Bldg., Sacramento, Calif.

NO COMMISSION Sell your farm direct to buyer. We put you in touch with thousands of buyers through our chain office service. Booklets of farms for sale by owners free. OWNERS' NATIONAL LISTING BUREAU, INC., 439-40 Roberts Bldg., Los Angeles, Calif.

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WANTED—Good small ranch, not over 160 acres, part timber, part pasture, some good tillable ground, some fruit, near good hunting and fishing, prefer location on or near nice lake, not particular about buildings, as can erect own if necessary, but ranch must be sightly and well situated. Wanted by Eastern man as residence for himself and family part or all of the year. Must be worth the money. Parties with white elephants to unload keep off. Give full particulars. Address E. C. ROBERTS, Davenport, Iowa.

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Storing Food Crops

HENRY C. WALLACE, Secretary of Agriculture, has the following to say regarding the storing of food crops:

The business of accumulating and storing perishable food products in times of flush production, preserving them safely and distributing them in times of scarcity, is necessarily a part of production and equal in importance and dignity. The duties and responsibilities of the producer are no greater than the duties and responsibilities of those who store and distribute.

Handlers and distributors of food products perform a great national service and the fidelity and efficiency with which they perform this service has much to do with the maintenance of the original production on the one hand, and the maintenance of the health of people on the other.

The introduction of mechanical refrigeration has made easier the transportation and storage of perishable food products and therefore has helped to maintain adequate production. Also, it has helped both to stabilize prices to the consumer and to provide him with necessary quantity during the season of slack production.

Both the producing and the consuming public at times take a curiously inconsistent attitude toward those who make it their business to buy, store and distribute food products. Instead of looking upon this business not only as legitimate, but as indispensable to an even supply of food through the year, both producers and consumers have at times denounced it and condemned those engaged in it as food hoarders and profiteers.

Such a view is most unjust. No fair-minded man, whether he be consumer or producer, can fail to look upon the storage of food products, whether of grains or perishable products, in any other light than that of a necessary public service, if we hope to maintain our present industrial and community life.

What the producer and the consumer both have a right to expect of those who engage in this business of storing and distributing foods, is that the business shall be so conducted as to preserve the wholesomeness of the foods and as to reward productive effort rather than purely speculative enterprise.

Many Acala Cotton Advantages

1. It is early.
2. Can set a good crop in a short period of time.
3. Does not shed its bolls and squares during hot, humid weather as badly as other varieties.
4. Withstands much grief.
5. Has large bolls, opening well.
6. Yields very heavily.
7. Easy to pick because bolls open wide and burrs have rounded points.
8. Because of the greater spirility of its fiber it hangs to the boll better; thereby being beaten to the ground less than other varieties during rain, wind or hail storms.
9. Has excellent, uniform fiber.
10. Brings premium on market.
11. Is in great demand by mills.
12. Has good lint percentage.
13. Is well suited to Imperial Valley conditions.
14. Comprises 75% of the cotton in California and Arizona.
15. Is the only variety of which there is a large enough supply of pure seed to plant the entire Imperial Valley.
16. Last, but not least, it has all the good qualities of any other upland variety and a great many more.

Know Your CALIFORNIA

Little Journeys Into Agricultural Districts

[Editor's Note—Brief intimate glimpses of agricultural communities in various parts of the State will be published from time to time under this heading. Subjects will be chosen at random without regard to rank in production or agricultural importance. Get acquainted with your California, its opportunities and delights, by accompanying ORCHARD and FARM representatives upon these informative "little journeys."]

II—Perris Valley, Riverside County

PERRIS VALLEY farmers are prosperous because they don't put all their agricultural eggs in one basket. A complete list of the products of this prosperous district would resemble a table of all the farm crops of the nation. All kinds of livestock, grains and vegetables, as well as most varieties of fruits and nuts, grow there to perfection, according to its enthusiastic booster inhabitants.

This favored section comprises 75,?00 acres of rich, level land 73 miles southeast of Los Angeles and 18 miles from Riverside. The elevation is 1500 feet and the rainfall 14 inches. Water for irrigation is obtained by pumping. Many crops need little artificial watering. Flood waters of the San Jacinto River are to be conserved and used for summer irrigation.

Alfalfa is a leading crop. It is cut six times a year and often yields eight tons per acre. Part of the hay is sold for cash, but more and more is being marketed in the form of pork and dairy products.

Thousands of acres of wheat, barley, oats, gyp corn and milo maize are planted on summer fallowed land each year and yield profitable crops.

The growing of cotton and cotton seed is a new and paying industry. Only one variety, Acala, is grown. Growers in other sections pay attractive prices for Perris seed.

The Nuevo Colony has 2000 acres of apricots, peaches and olives, producing the finest kind of fruit for canning. Pears, apples, figs, all kinds of berries, potatoes and garden vegetables yield heavily. Some citrus fruits are grown. Table and wine grapes do exceedingly well. Many new vineyards are being planted.

Poultrymen and purebred livestock breeders have found Perris Valley well suited to their work, feed being cheap and the climate and soil favorable. Turkeys pick up a cheap living and bring high prices.

Perris is the leading town of the valley. Its Chamber of Commerce is glad to give additional information about local opportunities.

BEWARE OF NAKED OATS

That the hulless or "naked" oats exploited by different dealers and growers has not proved satisfactory is the contention of the U. S. Department of Agriculture. "Not until high-yielding, smut-resistant and otherwise better varieties of naked oats are developed will it be possible to recommend this type of oat as a safe crop for general planting," the Department warns, pointing out it is more economical in feeding, to buy common oats from which the hull has been removed.

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SUPERIOR ENGLISH LEGHORNS, INTERNATIONALLY KNOWN
THE WORLD'S BEST
Write for our price list on pedigree chix and hatching eggs. All chix sold for February. One half our output for April sold. [illegible] now for sale [illegible] recent importations [illegible] to 318 egg records.
ECKMAN & MILLIGAN, Lankershim, Cal.

Selection, Identification of Root Stocks

(Continued From Page Two)

[illegible] that cherries on Mahaleb root [illegible] to be more resistant to die-back, [illegible] cause of which is summer drought [illegible] shallow soils. One objection to the Mahaleb root is that it often makes a poor union, as the top outgrows the root, causing a constriction below the union. As a result, the Mahaleb is often credited with a dwarfing influence.

Mahaleb root seems to be more resistant to die-back, one cause of which is summer drought on shallow soils. One objection to the Mahaleb root is that it often makes a poor union, as the top outgrows the root, causing a constriction below the union. As a result, the Mahaleb is often credited with a dwarfing influence.

A few weeks ago the writer had occasion to visit a cherry orchard consisting of Royal Anne, Black Republican, Black Tartarian, Bing, Lambert and a number of other less important varieties. Some of the trees of each variety were budded on Mahaleb root and the remainder on Mazzard.

The owner of the orchard claims the trees budded on the Mahaleb have been giving bigger and more regular crops than the corresponding varieties on Mazzard root. Likewise, the trees on Mahaleb are much larger than those on Mazzard and there is no constriction at the point of union between stock and cion.

The owner gives the following as the reason for these conditions: If the Mahaleb is budded at the surface of the ground or even a little below the surface, there will be no constriction, a large tree will be secured and the crops obtained will be larger and more regular than corresponding varieties on the Mazzard root.

Several trees were observed which had been budded on the Mahaleb in the usual way. The characteristic constriction was evident. The reader must bear in mind that these observations were made in only one orchard, and therefore should not come to any hasty conclusions. However, it opens up the old question as to value of the Mahaleb as a root stock for the sweet cherry. The writer is of the firm belief that this root soon will be used as extensively as the Mazzard.

A cherry root stock which has some promise in California is the Morello. This stock is used quite extensively in the Eastern States at the present time. The division of pomology of the University of California is endeavoring to ascertain the value of this stock under California conditions.

The Mahaleb is the best root for soil that has a tendency to become too dry. Where soil conditions are proper the Mazzard is the best. The Mazzard root makes a larger tree, but comes into bearing later than Mahaleb.

From all external appearances these two roots are alike. However, if a small piece of bark of the Mazzard root is placed in the mouth and chewed it will be found to be very bitter and astringent.

Practically all peach trees in California are on peach roots; most of the remainder are on the almond. The Myrobalan and apricot now have been practically discarded as stocks for the peach, owing to the lack of affinity that seems to exist.

The question of adapting the peach to the apricot root (which is highly resistant to nematode attack) in nematode infested areas recently has been brought up. Although it has been generally recommended to not use the apricot for the peach owing to the lack of affinity, the writer has received a report from Southern California to the effect that where the apricot has been budded higher than is usual, good results have been secured. Where the trees were low-budded, great breakage has occurred.

The writer received a report last summer from one of the State nurserymen to the effect that he received an order to propagate a number of peach trees on the Myrobalan root. The writer has been under the impression that this root was discarded long ago as a stock for the peach. The trees seem to do well for a few years, after which breakage occurs.

A new root stock that gives promise of adapting the peach to soils that are alkaline in nature is the Davidiana or Chinese peach.

The three most important root stocks now used for plums and prunes are the Myrobalan, peach and almond. The Myrobalan is a hardy, thrifty grower and a deep feeder. It thrives well in heavy soils or on locations subject to a short period of excessive moisture. The conditions most favorable to this root are deep, rich, black or sandy loam, or a deep, fertile, heavy, black soil.

For the drier, gravelly soils, the peach or almond is used. Where the soil is shallow and extremes in water conditions exist, the peach is the better stock. If the soil is particularly adapted to the peach root it should be used rather than the Myrobalan, although the latter is the best all-around stock. One objection to the peach is that all plums cannot be worked on it.

On soils too dry for the peach, the almond root does well. It has the same fault as the peach—all plum varieties cannot be successfully worked upon it.

The Myrobalan root is always a characteristic brown, but the peach and the almond do not have this color.

It appears that the Diamond plum has suffered when grafted on the almond, at least in the foothill sections. When grafted on the peach the fruit has assumed the normal shape and size typical of the variety, but when grown on the almond the fruit is misshapen, gummy and unsalable. This condition was observed in one orchard on trees growing under the same condition.

Percentages of California Fruit Trees Propagated on the Different Stocks During 1922.

Almond—Almond, 72.0; Peach, 28.0.
Apricot—Peach, 30.7; Apricot, 46.0; Myrobalan, 22.5.
Cherry—Mazzard, 80.4; Mahaleb, 19.6.
Peach—Peach, 98.0; Apricot, 1.4; Almond, 0.3; Myrobalan, 0.3.
Plum—Myrobalan, 57.6; Peach, 29.6; Apricot, 10.7; Almond, 2.1.
Prune—Myrobalan, 63.8; Apricot, 1.4; Peach, 25.2; Almond, 9.6.

How to Treat Tree Pruning Cuts

MANY questions are asked, especially by the beginner in the orchard business, regarding the treatment of cuts after branches are removed in pruning. The importance of applying some material to such cuts may be easily overemphasized, because no treatment will result in the healing of a wound from an improperly made cut.

The emphasis, therefore, should be placed on the necessity for removing a branch in such a way that there will be no stub left. If no stub is left healing will take place, and the wound will [illegible] well, provided the cut was made underneath a branch. Top cuts heal [illegible] difficulty and should be avoided [illegible] as possible, while under cuts [illegible] to heal well.

[illegible] good will result from cautioning [illegible] against making top or shoulder [illegible] from painting wounds [illegible] improper pruning. It is well to [illegible] pruners to make vertical cuts [illegible] possible and to avoid any cuts [illegible] horizontal or nearly so, also [illegible] no stub, no matter what kind [illegible] in pruning, if large [illegible] are being removed.

[illegible] emphasis has been placed on [illegible], rather than the treatment of [illegible] wounds, there is a value in [illegible] of those three [illegible] or more. Lead [illegible] often used, are not [illegible]. A far better wound treatment is grafting wax, which is little used, because it is expensive.

Some of the compounds prepared specially for wound treatment are very satisfactory. Water glass—sodium silicate—which is used in the preservation of eggs, is claimed to be valuable for sealing wounds and preventing drying out. Asphaltum is also a satisfactory material for this purpose.

Disinfection to prevent the entrance of wood rot fungi is of more importance than treatment to prevent drying out, and a thorough application of Bordeaux paste to large pruning wounds is always good.—GEO. P. WELDON.

Shellac Protects Metal

THAT brass and copper may be kept in good condition by covering with a coat of white shellac is the discovery of the manager of a large California cannery.

The metal first is cleaned carefully, then dried and immediately coated with the shellac, which protects it during the idle season.

For vessels in which fruit and vegetables are cooked, vaseline is used instead of shellac, a thin film of this material sufficing to prevent corroding of the metal for several months.

This hint is passed along for the benefit of farmers, dairymen and fruit growers who have equipment which includes brass or copper parts.

Canada's

Ask the Canadian Pacific about Canada — CANADIAN PACIFIC RAILWAY

1923 Crops Beat All Records

SHARE IN CANADA'S OPPORTUNITIES

In 1923 the wheat crop of Canada exceeded the 1922 crop by almost 100,000,000 bushels. In Alberta, the average yield was 26.5 bushels per acre and there were many individual cases where yields of 50, 60, 75 and 80 bushels were returned. Other crops showed a corresponding increase over previous years with equally high yields. These enormous yields on moderate priced land even at average prices for farm products have placed many farmers on the road to success.

AMAZING NEW FARM OFFER

LEAVES YOU A SURPLUS FOR COMFORTABLE LIVING

The Canadian Pacific Railway now offers you a Farm Home in Western Canada on a New Long-Term Plan of Easy Payments that is Extraordinary. The plan makes it possible to own a farm home without taking all profits to meet land payments and leaves a surplus for the comforts and enjoyments of life.

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FIRST YEAR FREE USE OF LAND

Under this plan all the settler pays down is 7% of the purchase price—One year's free use of the land without any interest chargeable whatsoever. The balance of principal and interest will be amortized on an easy payment plan of 34 equal annual payments which makes the second payment fall due two years after the purchase of the land, which is figured on the basis of 7% (including principal and interest) of the balance of the cost of the land. For example, on a purchase of 160 acres costing say, $3,000, the down payment will be $210 and the annual payments, commencing at the end of the second year, will be $195.30. After 35 years the settler will get clear title to the land—unless, of course, he wishes to pay sooner, which is his privilege.

NO TAXES ON IMPROVEMENTS

Taxes are moderate and there are no taxes on livestock, buildings, improvements, implements or personal effects. Good markets, modern schools, roads, churches, amusements make farm life in Western Canada desirable and attractive.

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In sunny Alberta—a district that is especially adapted to mixed farming and where irrigation has been proved beneficial—a vast irrigation system with an unfailing supply of water administered under the direction of the Government, has been constructed.

Irrigation in Southern Alberta—insures you a crop every year—increases your crops each year—makes you independent of weather conditions—produces great quantities of coarse grains, pastures, alfalfa, roots, etc., thus developing the livestock industry which is safer and ultimately more profitable than wheat farming—tends toward closer development, well-cultivated farms, good neighbors.

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You must inspect the land before buying in order to judge of its fertility. Special inspection trips from points Chicago and West will leave on the first and third Tuesdays each month. Single fare plus $2.00 for the round trip. Let us arrange details. Send this coupon now. It will give you without obligation complete information on this new and amazing plan. These terms are so easy that you can own your own farm home—instead of renting.

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EASY VALVE ACTION
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How to Chrystallize Flowers for Candy

COMPLYING with numerous requests for additional information regarding the process of crystallizing flowers, the following instructions in this art are given. They were sent to ORCARD and FARM by H. S. Payne, chemist in charge of the carbohydrate laboratory of the United States Department of Agriculture, who obtained them from "Encyclopedia of Practical Cookery" and "How to Make Candy."

Crystalizing flowers is one of the simplest and most useful processes known to confectioners, for by it little or no art is required to produce exquisite results that are the foundation of ornamental confectionery. Fruits, confections and flowers can be crystallized.

The first thing necessary is a crystallizing tin. This consists of a tin box filled with wire gratings, or trays, so arranged that they can be let into the box in even stages, one above the other. This will suggest that the trays should be fitted with four legs, so ordered that the legs of the second tray will rest upon the upper surface of the first, and so on for as many trays as are used—the less the better, one being better than all.

FILL TRAYS WITH FLOWERS

Upon these trays the articles to be crystallized are carefully arranged with room between them, so that the crystals shall form all around. When the trays are filled and packed, the next step is to fill the box with a strong crystallizing syrup.

This is made by boiling loaf sugar in water—two pounds to one pint of water—and continuing the boiling until the syrup reaches 220 degrees Fahrenheit. Then it should be taken from the fire and stood in a cool place until it is blood-warm.

Pour this syrup over the articles to be crystallized and fill up the tin well over the top layer. Set this in a cool, dry pantry and leave for several hours, until a thick, strong, hard crust is formed on the surface. This will indicate that crystallization has taken place, and that the articles on the trays or stages are also crystallized.

Then pull out a plug situated at the bottom of the tin and let all the loose or uncrystallizable syrup drain off. Leave the articles on the trays a bit longer to dry and set nicely, when they may be used.

Be careful not to disturb the syrup when set for crystallizing and use no cream of tartar in the syrup. Flowers and confections, such as liquor bonbons, require no preparation. Fruit should be previously lightly boiled in syrup.

ANOTHER GOOD METHOD

Detach the flower from the stalks, rinse in cold water and dry them on clean sheets of paper.

Dissolve thoroughly, using a saucepan, two pounds of lump sugar in one pint of water, stirring constantly with the thermometer. Then add a pinch of cream of tartar and cook to 240 degrees Fahrenheit, or until the mixture will form a soft ball when dropped into cold water.

Then take the pan off the fire, drop in the flowers, submerging them completely in the syrup, and put the pan back on the fire. When the mixture has boiled up once, remove it from the fire and pour it slowly, but steadily, into a cold dish. On the following day the mixture should be drained on a sieve, one-half pound of lump sugar added, and the mixture boiled to 238 degrees Fahrenheit.

Put back the flowers that were removed by draining and let mixture stand until next day, when it should be drained again, put on the fire and brought to the boiling point when the flowers should be put back, the mixture removed from the fire and gently stirred until the syrup starts to grain.

The process is now ready to complete by pouring the entire contents of the saucepan onto sheets of paper, separating the flowers so that they will dry singly, and when dry take them from the sugar.

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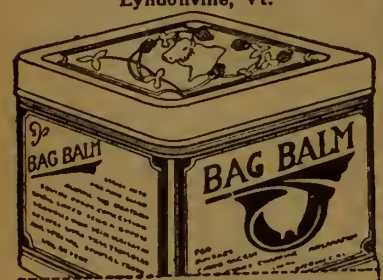

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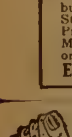

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Pointers on Using and Caring for Belts

By JAMES KOEBER

Of the Division of Agricultural Engineering, University of California.

THE flesh side of a new leather belt is rather rough and the hair or grain side quite smooth. Small pulleys, as those used on motors, are often made of wood fiber, which is rougher than iron or steel; therefore, belts are less likely to slip on them.

Should we not, then, put the rough side of leather belts against the pulley faces? In fact, this very thing is often done. However, the results of nearly all tests point to the opposite as being the correct practice.

Under average shop tension the capacity of the flesh side to transmit power is from 58 to 68 per cent of the capacity possessed by the grain side. In general, the grain side will transmit from one to three times as much power as the flesh side, depending upon the belt, the tension and the conditions of service.

Exactly the opposite in the way of results may be secured when a new belt is first tried.

LEATHER BELTS SUPERIOR

"But," you object, "we cannot afford to use leather belts. They are too expensive."

That depends entirely on whether one is thinking in terms of original cost or entire life of the belt. Many leather belts properly installed indoors and well cared for have run twenty years and more on a daily schedule.

If belts must be subjected to exposure and extremes of weather conditions, some form of canvas belting should be used. These may have the spaces between the canvas threads filled with rubber or linseed oil compounds. Such belts stretch more when in use than leather.

They cannot, in general, be depended on to transmit as much power as leather belts. A slip of 2 to 3 per cent is developed with the former at about one-half as heavy a load as the latter may be depended on to carry.

USE GOOD BELT DRESSING

To maintain belt surfaces in good condition, a belt dressing applied lightly and at frequent intervals is essential. Dressings that are sticky or that harden on either belt or pulley are not satisfactory. Those that penetrate and slightly soften the belt are far better. This is especially true of dressings for leather belts. Such belts usually need an internal lubricant rather than an outside dressing.

For use on rubber, canvas and leather belts, castor oil is very satisfactory, but should always be used sparingly. Raw linseed oil for canvas and rubber belts, and neatsfoot oil for leather may be used to advantage, as well as some prepared belt dressing.

Luther Burbank Is Now Seventy-Five

LUTHER BURBANK, world's greatest plant improver, completed three-quarters of a century of service March 7. On that day he received a multitude of congratulatory letters and telegrams, many of which expressed the hope that he might be spared for twenty-five more useful years, a wish heartily shared by ORCHARD and FARM.

As many visitors as he was years old were received and his spacious Santa Rosa home was made a bower of beauty by scores of lovely floral offerings, most of which were soon passed on to flowerless friends.

This great creator of better things in the plant world is a notable exception to the old saying, "A prophet is not without honor save in his own country." Santa Rosa and Sonoma County consider him their most distinguished and best loved citizen. A memorial park near the county seat is being improved to perpetuate his memory and in many other ways the visitor is reminded that he is in "Burbank Country."

During the first two months of the year Burbank was ill with acute bronchitis and heart disease, but afterwards recovered a large measure of his usual health and strength. During the winter and spring months he receives about 2000 letters a week, many of which are from buyers of his plant creations. Failing health forced him to give up his nursery business, but he has 65,000 appreciative seed customers.

The 35 daily visitors whom Burbank entertains, on an average take a great deal of his time and strength. He is too kind to turn away all who wish to see him, although meeting so many strangers constitutes a great burden. Many let him know in advance by mail or wire of their intended visit. From present indications, an unusually large number of persons will make a pilgrimage to the Burbank shrine this year. "They're coming by rail, auto and steamer from everywhere!" exclaimed the great naturalist, with mingled joy and despair.

Members of the ORCHARD and FARM family will be glad to know that our star contributor is an appreciative reader of many of our stories and articles. At present he is greatly interested in mechanical dehydrators, which are superseding sun drying of California fruit.—O. H. B.

Horse Beans Important San Mateo Crop

PESCADERO (San Mateo County) has grown horse beans since the district has existed, but only in a small way for feed purposes, each farmer sowing what he needed for his own use.

It has remained for the Peninsular Farms Company to develop the industry and make it an enterprise worth while.

F. L. Lathrop, the superintendent, informed the writer that his company has raised at Pescadero this season 40 per cent of all the horse beans grown in the State of California.

He has opened warerooms and a grading establishment in the town of Pescadero—where twenty-five girls and women are employed—each operating an individual machine, that carries the beans on a belt, where they are sorted into three grades.

Grade one goes out to all parts of the world largely as a food product, also as reselected seed.

Grade two is used for seed for future crops also as seed for cover crops, for which purpose the horse bean is rapidly gaining favor, while grade three is used for feed purposes. This new enterprise means employment for not a few town people, and carried a payroll of at least $5000 for the past season.

The company had in about 400 acres last year in the Butano and Bean Hollow Canyons. They have much to contend with in the way of insect pests, and have tried out various sprays and dusts in their endeavor to combat the weevil that causes the greatest loss. The aphis at times is very destructive.

Experiments have shown that late planting brings a clean crop, but a light yield, while early sown seed brings a heavy yield with the weevil.

In past times the beans were threshed out by means of tramping with horses, entailing a tedious job and none too clean beans while at the present time, a businesslike threshing machine—tractor propelled—runs them through in record time, insuring cleaner beans with much less labor.—BERTHA E. BROWN.

Kill Codling Moth

Have two apple trees in my yard. They bear fine apples, but the worms get them, causing them to drop off. How can I keep the fruit free from worms?—J. TUTTLE, Los Angeles County.

YOUR apples are no doubt infested with the common pest known as the codling moth, which all commercial apple growers are forced to spray for each season.

For complete control more than one application of the spray is necessary, the number depending on the abundance of the pest in the orchard. In cases where one or two trees are infested in the home orchard, two applications will bring satisfactory results.

The material to use is arsenate of lead, which may be purchased ready in dry or paste form. The former is used at the rate of one and one-half pounds to fifty gallons of water and the latter, three pounds to fifty gallons.

The first application should be made when the blossoms are practically all off and before the little calyx cups at the end of the apple closes. The second application should be made three weeks later. If both sprayings are thorough most of your apples will be free from infestation.—GEORGE P. WILD.

Former Aviator Takes Successful Farming "Flyer"

Lands on Imperial Valley Dairy Ranch—Now Well on Way to Becoming Agricultural "Ace"

FIVE years ago, having received his honorable discharge from the Aviation Corps, Walter B. Havekorst arrived in the Imperial Valley, secured a job as a zanjero, peeled off his coat and everything else the law would allow (for it was in the good old summer time) and went to work in earnest.

It wasn't long until the former aviator decided to take a "flyer" in agriculture himself, and soon he was in possession of 80 acres near Meloland, east of El Centro. Good health, ambition and nerve made up for slender capital. Thus, with what money he could get together and such backing as he could secure, Havekorst volplaned into a new world.

Neither his education in law nor his experience in the service availed him much in this undertaking, and for more than three years he had to call on all his reserve of endurance and determination in order to keep his agricultural ship from going up in the air.

[illegible], however, young Havekorst is not only rated as a successful farmer, but also as a good breeder and judge of Guernsey cattle. Incidentally he is assistant manager of a local bank, but [illegible] his home upon the ranch and [illegible] its activities. His parents [illegible]ly took up their residence [illegible] which made this arrangement [illegible].

[illegible] returning to the cattle enterprise, [illegible] started with two purebred [illegible] $175 each. Within [illegible] his stock inventoried more than [illegible]0.

At present he has on hand 125 head, [illegible] young stock he is raising [illegible] with a Los Angeles [illegible] and has a milking [illegible] cows.

[illegible] of stock [illegible] another big Los [illegible] self-[illegible] which brought in [illegible].

[illegible] 50 [illegible] this [illegible] ter. [illegible] the [illegible]

of the good demand for breeding stock and because he believes they are well adapted to the Valley climate. He sells milk to a local co-operative creamery, his cream checks frequently amounting to $100 a week.

One of the most consistent testers in the Valley, the young banker-farmer has made excellent records. During one month in 1920 12 head of Havekorst's cows made the highest individual average in the Western States for herds under 20 head. During this same year the general average was 53 pounds for this even dozen of milk cows. During 1923 the average for 30 cows was 35 pounds of butterfat.

The owner attributes these results to the use of good sires from high-producing bloodlines, together with care in selecting original breeding stock. His present herd sire, Reuben Langdon of Hollow Hill, son of Rebecca of Sunny View, was bought at a purebred sale sponsored by the Farm Bureau. This is the third bull Havekorst has owned, his first being from the Brant herd and his second, a Langwater animal.

W. B. Havekorst as he appeared when an officer in the Aviation Corps. Below, five years later, holding herd sire on his Imperial Valley ranch.

AIDS DAIRY DAY

Recently he sold to the Farm Bureau for $175 a young bull of his own raising, valued at $350 or more, which was raffled during the Dairy Day celebration. More than $1000, or sufficient to pay all expenses of Dairy Day, was realized from sale of tickets at $1 each, and excitement was at fever pitch when the time for the drawing arrived. This "stunt" did much to win the interest and attendance of dairy people at El Centro's big event.

In other ways, also, Havekorst is contributing to the general welfare of the industry and helping to improve production and breeding methods in the Valley.

"We hope to see many more herds of purebreds here," he asserts. "But it seems a mistake for farmers to jump into the breeding game too suddenly. By selling off or trading a few animals at a time it is possible soon to replace a grade herd with registered stuff.

"But the breeding business is injured rather than helped when an inexperienced man without much capital makes too heavy an investment in registered stock. My own experience shows how easy it is to build up a herd from a small start, especially here where young stock may be raised so cheaply."

Recently Havekorst had his herd tested for tuberculosis, his 125 animals [illegible]. [illegible] then, several neighbors have had their cows similarly tested.

Havekorst believes it would be better to not pasture alfalfa as much as is done in the Valley. He soils some of his green feed, but is planning to have a silo and raise honey sorghum to fill it. As yet, however, his building program is in the embryo stage. Wisely, he has concentrated so far upon building up the herd, which as he points out, brings in the cash that later will make it possible to erect modern buildings and add desired equipment.

"We're sort of feeling our way," is how young Havekorst puts it. But the observer cannot help noting that remarkable progress has been made in so short a time.

In addition to the dairy enterprise, this ambitious farmer plans to develop a grapefruit orchard as a sideline. All the manure from the dairy plant is being applied to a selected 10 acres, half of which is being planted to trees this year. Eventually the orchard may be extended to include 20 or 30 acres.

"Yes, at last I'm beginning to see light," smiles the subject of this story. "But, of course, I have a long way to go yet. I wouldn't want to give the impression that I have overcome all my difficulties and reached my goal in so short a time. But I have demonstrated to my own satisfaction that if a fellow is willing to get down to mule 'skinning', dust, heat, hard work and perspiration for a while he can beat this farming game even without a great deal of capital. There's a lot more work and worry ahead, but—the first five years are the hardest."

Radio Brings Outside World to Farm

THE illustrations at lower right of page are from photographs taken at the Imperial Valley ranch of J. R. Worley, who confesses he succumbed early to the deadly bite of the radio "bug."

Worley has a set capable of "bringing in" such distant stations as Vancouver (B. C.), Portland, San Francisco and many Eastern points—even to the Atlantic seaboard.

"The only bad feature of this radio craze," comments the Brawley farmer, "is that it interferes with the ranch work. The temptation is great to 'listen in' when we ought to be doing something else. But we had rather give up almost anything we have than dispense with the wireless!

"After all, it is on the farms that the radio is most useful. The city resident has all kinds of entertainment at his elbow, but until the advent of the radio we in the country had to make most of our own entertainment."

GETS HEAVY YIELDS

Worley has one of the most highly developed vineyards in Imperial County, including 56 acres of malagas. Of this area, about seven acres consists of vines 15 years old, which he asserts never yield less than four tons and have made five tons.

Like many other growers of early table grapes in the Imperial, Worley met discouragement at first through failure of his product to "stand up" under shipment. While a number of growers removed their vines, however, he decided to experiment, with the result that he found the solution to this problem.

"The fault appeared to be in our methods of irrigation," he points out. "Many of our growers have been applying too much water; that is, irrigating too often. I give plenty of water at each irrigation, but probably use one-third the amount applied by some growers in the course of a season."

Worley shows that frequent, light irrigation tends to encourage the growth of feeder roots close to the surface, a fault which weakens the vines and detracts from the keeping qualities of the grapes.

This grower prunes severely in order to encourage large size in the fruit, an essential attribute for the early table market.

SOLVING MARKET PROBLEM

The selling question has been a vexing one, but the Farm Bureau is now working out a marketing project which it is hoped will tend to stabilize prices. Worley estimates the average returns secured by Valley growers at from $300 to $400 an acre.

Grapes have been picked on this ranch as early as June 28, but the usual harvest period is from the 10th to the 15th of July.

A mile of cement ditch, constructed at a cost of 46¼ cents a foot, and fitted with metal outlets, simplifies irrigation of the vineyards. A tracklaying tractor is used for vineyard tillage and other farm work.

Worley also has a fine young grapefruit orchard.

Rainfall Predictions

IN this age of marvelous scientific achievement we are not surprised when we learn that at last a basis for accurate predictions of seasonal rainfall has been discovered.

This very important information comes from a scientific institute at La Jolla, California. According to reports, scientists working in this institution have found that there is a direct correlation between the summer temperature of the ocean water near shore, and the rainfall of the nearby land. For seven years it has been possible closely to estimate the rainfall of Southern California.

This winter the prediction was made that the fall would be somewhat light, or from 20 to 30 per cent less than normal. This news, following the dry period of last winter, will not be relished by the fruit growers. Yet it is worthwhile information, since it should encourage moisture conservation methods and heavy irrigation.—GEO. P. WELDON.

This is the attractive Imperial Valley farm home of J. R. Worley, who has caught the radio fever and doesn't want to be "cured."

A mile of cement ditch with metal outlets facilitates irrigation. The trough is 10 inches deep by 30 inches wide.

Hawaiian Pineapple Plants Protected by Paper

Remarkable Results Attend Adoption of New Mulching Method—Interesting California Experiments

By JAMES HAMILTON COKE

LITTLE by little, information has come from across the Pacific of the astounding success of the mulching system of planting which has revolutionized pineapple growing in the Hawaiian Islands.

Land that never before was suitable for the growing of this popular fruit now is made available for production. Sweeter, larger, cleaner fruit is the result reported by experts who have introduced this scientific method of growing in Hawaii. Increases in yield of from 20 to 35 per cent are shown in the annual review of the Hawaiian Pineapple Company, Ltd.

While much has been said about this new agricultural development, few people are acquainted with the details, and the manner in which the mulching system came about. The story, similar to the account of most discoveries, is something of a romance, and the fact that this first came about in the interior sections of Hawaii adds a Robert Louis Stevenson atmosphere to the story.

It seems that several years ago, a well-known planter, Charles F. Eckart, was troubled a great deal with the growth of weeds in the sugar cane fields. He realized that the weeds not only prevented the growth of the cane, but also absorbed a large amount of the nutriment from the soil.

Becoming interested in the subject, he made an experiment with a sort of paper made from the cane fiber (which is left after the juice has been extracted), called Bagasse.

The resulting paper was a soft, pliable sheet, which was easily penetrated by the short, sharp cane shoots, while at the same time the growth of the weeds was prevented. Encouraged by the success of this first venture, Eckart watched the growth of the cane closely, and subsequent analyses showed a tremendous increase in the sugar content.

Feeling that he had made real progress with his problem, he turned to other Hawaiian crops and carried on another series of successful experiments. Pineapples then presented a good field to Mr. Eckart, and as the cycle of this plant is about five years, he realized that his Bagasse paper was not tough enough to last so long a period, and cast about for a material that would come up to his requirements.

A number of tests then were conducted with roofing papers, and the aid of the research department of The Paraffine Companies, Inc., at San Francisco was enlisted. After an exhaustive series of experiments and tests which lasted the better part of two years, a material was manufactured by the Paraffine Companies, Inc., which actually raised the temperature of the soil from two to six degrees.

Some 500 acres of pineapples were tested by the Hawaiian Pineapple Co. Ltd., and the results were: Production per acre was increased from five to eight tons, sugar content was raised 23 per cent and the harvesting was two months earlier than in untreated sections.

With such gratifying results, tests were started at the beginning of 1923 with other crops in California, and almost without exception the phenomenal results obtained in Hawaii were duplicated here. Orchards, vineyards, berry patches, tomatoes, flowers and drilled crops have been subjected to the mulching system, and in some places production was increased 10[illegible] per cent!

Of interest to farmers and growers is the cost of this system. In Hawaii 60 per cent was paid for by the saving of labor in cultivating and weeding. Then, in sections where it is necessary to irrigate, a large saving of water is effected by the ability of the paper to reduce evaporation. This reduces to a minimum the actual cost of the system.

On the other hand, production per acre is materially increased, the crop is much cleaner, insect and worm loss is decreased, and above all earlier ripening means a larger return. The growth of morning glory, Johnson grass and Bermuda grass, troublesome California weeds, is checked and will possibly be eliminated, and the damaging red spider is controlled in the strawberry growing sections, according to reports of experimenters.

The University of California and prominent agricultural men of California now are conducting further experiments, and by the fall of 1923 these experiments will have been completed. New uses are being found for this dull black paper every day.

First paper is laid and edges covered. Then pineapple shoots are set through the paper.

No, this has nothing to do with pineapples. It shows a big "combine" harvesting barley in the rich Delta district of the San Joaquin. A 75 horsepower track-layer furnishes the power.

Cutting sorghum with a corn binder. With this machine 5 to 7 acres a day can be cut and bound in bundles. This machine is said to do five times the work of a man with a corn knife. (Courtesy International Harvester Co.)

This remarkable view was taken from the historic Pali, showing pineapple fields with paper laid in rows ready for planting.

The above photograph shows unique arrangement of laying houses on a hillside farm near Petaluma. The College of Agriculture at Berkeley furnishes free plans of poultry buildings adapted to different locations.

ORCHARD *and* FARM

APRIL 6, 1924

Personal Service Built This Successful Plant

Lack of Capital Did Not Prevent Owner of "Henacres" From Achieving His Goal

By W. J. DRYDEN

REAL service is being rendered more than 2000 poultrymen on the Pacific Coast by E. R. Wells, owner of Henacres, one of the greatest poultry farms in the "Inland Empire" of Washington.

A modern printing plant has been added to the poultry equipment of Henacres in order that the big mailing list can be supplied with the latest information on feeding, housing and management.

As his business is divided into commercial egg farm, breeding farm, hatchery and orchard, Wells is in a position to follow the poultry industry from many angles and to give advice along all lines from his own experience, as well as the findings of the leading authorities of the country.

Of course, the printery turns out circulars, price lists and other advertising matter, but the bulk of the work is the preparation of hints to poultrymen, sent out about every month. Mr. Wells does not believe his contract is fulfilled when he delivers the day-old chicks, but follows up the sales with instructions in feeding, management and housing.

Many poultrymen have asked if the printing plant and the personal service idea pay Henacres for the trouble. To quote Mr. Wells: "We have not made, nor do we expect ever to make, a fortune from our hens, but we have enjoyed our work and made many true friends and are earning a good living. We expect to continue to do so and to raise and educate our two boys. What more can one ask?"

A MODEST BEGINNING

But, regardless of the enjoyment they have secured from the farm, these poultry raisers have made money. In 1915, Mr. and Mrs. Wells moved to Prosser (Wash.), and purchased an 11-acre apple orchard for $5500, paying $500 down. This left them with only $200, in addition to the 100 hens and seven male birds that they had brought from Pasco, their former home. There was not a sign of a poultry house on the eleven acres, so it was necessary to construct one out of old material, which was done at a cost of $15 above labor.

This plant has been expanded to the point where it now brings Wells from $5000 to $7000 a year net profit. The apple orchard has yielded as high as $11,000 worth of fruit in a single season. When it is considered that Wells does a yearly business of from $30,000 to $50,000, it can be realized just how his $700 investment has grown in nine years!

Expansion of the business has cut down the net profit. To begin with, his original flock was not worth more than $500; and it is doubtful if he could have secured that price for it. Now one of his breeding pens is valued at $6000, and according to present prices I doubt it he could duplicate the stock for any less.

To the best of my knowledge, Henacres is the only large poultry breeding plant in the world that keeps all of its highest grade stock for the production of baby chicks. It is upon this idea that Wells has built up one of the best-paying baby chick businesses in the Northwest. His best pen is used for the exclusive purpose of producing male birds for their general breeding flocks, or those flocks devoted to the baby chick business.

EXPERIMENTS IN LIGHTING

During the past seven years experiments have been carried on at the Henacres farm to determine the value of electricity for lighting with both breeding and commercial flocks. Mr. Wells has reached the conclusion that the use of light to provide a twelve-hour day works for the betterment of the birds, keeping them in better physical shape and resulting in more fertile eggs and better hatching ability.

During this period part of the stock was kept under the lighting schedule, while some were left under natural conditions. After comparing results, Wells decided in favor of the use of electricity to produce a twelve-hour day.

The morning feed of the Henacres' layers consists of sprouted oats (about a quarter of an inch long). This is followed by a noon feed of moist mash, consisting of 100 pounds of bran, 100 of ground corn, 100 of ground oats, 50 pounds of beef scrap, 50 of fish meal, 2 pounds of salt and 10 pounds of charcoal. The same formula is used for the dry mash, which is kept before the hens the entire time. During the molting period 20 pounds of old process oil meal is added to the mash.

Late in the afternoon wheat is scattered in deep straw litter. In the winter half corn is added to the wheat. Whenever possible sour milk or buttermilk is kept before the hens, in which case the meat scraps and fish meal are reduced one-half. Milk also is used to moisten the wet mash. In addition, grit, shell and charcoal are kept before the hens in hoppers.

Wells starts his baby chicks on sour milk or buttermilk when possible, forcing each chick to take a drink. As soon as the youngsters gather around the heat he scatters chick feed and grit in the litter. This is followed by the third feed two hours later, which consists of rolled oats. The grain and rolled oats then are alternated every two hours, with grain for the final feed at night.

Beginning with the third day, he adds chick mash or bran as noon feed, leaving before the chicks for one hour. He gives also chick grit, charcoal and bone meal. Beginning with the fourth day, Wells keeps the mash before them all the time.

On the sixth day he adds one part sifted beef scraps to ten parts of bran, and begins to let the chicks outside. Beginning with the tenth day, he feeds chopped greens and the following day cuts down the rolled oats to twice a day.

The regular program of three feeds a day starts on the eighteenth day with a chick feed in the morning and evening and oat flakes at noon. After the sixth week he begins to change to cracked wheat and corn or developing grain.

After the eighth week he separates the pullets and cockerels and puts them on a developing mash and grain.

DOESN'T CONSIDER LUCK

Neighbors who desire to keep the good graces of Wells long ago have learned never to question him as to his luck. He is a strong believer that there is no such thing as luck. Failures, diseases and poor production are not luck, according to Wells, but are brought about by lack of knowledge or failure to study and understand local conditions.

He believes that poultry pays better in proportion to the care given it than any other farm livestock and on account of this he believes in giving his poultry all the care possible in order to make them pay as much as possible. Profits are not so much the result of local conditions, according to Wells, as the care and attention given the flock.

At the 1922-1923 Western Washington Egg-Laying Contest the Henacres pen won first for the months of August, September and October and finished the year with a production of 224 eggs per hen.

After all, a man who will carry his eggs to market and return with his poultry feed on his back, as Wells did when he was starting in, should succeed as the owner of Henacres has. During his first few months of operation to serve as truck, horse and entire farm organization, was the program he laid out for himself. A man who will and does succeed under these conditions is worthy of the success and his wife, who struggled with him, is also entitled to the reward.

The owner of "Henacres" believes in advertising. Even his car carries the ranch name on the tire cover. The comforts that financial independence have brought him and his family are regarded by this poultryman not as a product of "good luck," but rather of study and perseverance.

Left—Containers used for shipping. Below—Laying house, which is equipped with electric lights to lengthen working day.

Above—Showing how hatching eggs are marked. Left—Illustrating one advantage of country life enjoyed by the Wells boys.

Buildings at Henacres are simple, yet substantial. Starting with an investment of $700 nine years ago, the owner now does an annual business of from $30,000 to $50,000. Above is shown one of the brooder houses.

Thrive on Cull Figs

Fresno Investigators Assert Hens Relish Fruit Diet

CULLS, nubbins and floaters of figs which have been considered almost a waste product, form an ideal food for chickens which greatly stimulates egg production according to a discovery, made after a thorough investigation, announced recently by J. C. Forkner of Fresno.

The discovery, which is based on many practical tests made by John F. Forney of Kingsburg, well known poultryman, is expected to prove valuable to all fig growers as well as all chicken raisers in the San Joaquin Valley.

Analyses made by the Twining Laboratory, which has had considerable experience in analyzing poultry foods, corroborate Mr. Forney's practical experience from a scientific standpoint.

Because the new use of fig culls is of interest to all fig growers and will have an important bearing on the fig market, Forkner has presented the results of his investigations to the attention of the California Peach and Fig Growers, who assured their hearty co-operation in further experiments.

AIDING DIVERSIFICATION

Forkner's investigations were prompted in conformity with the Valley campaign for greater diversification of farm products and after the Fresno County Chamber of Commerce had published a report showing that although Fresno County is an ideal place in which to raise poultry, Fresno is importing 3000 cases of eggs every month at an annual cost of [illegible] and is exporting 15 carloads of chicken feed each month. Added impetus to chicken raising, it is hoped, will come with a general use of the fig as poultry feed.

"The fig is the only fruit," Forkner declared, "which chickens like and which directly stimulates egg production. I have experimented with grapes, raisins, peaches, [illegible] and other fruits, as well as [illegible]. None of the others is good for egg production. I do not know [illegible] unless there is an acid in them which is injurious. Figs are free from this acid. [illegible]

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
APRIL 6, 1924

Is Farmer Justified in Limiting Production?

"Yes, No," Say Interested Readers in Discussion of Recent Article by Ray C. Gruhlke Recommending Arbitrary Curtailment

"It Is Un-American"

E. R. WILLIAMS

Vice President, California Canning Peach Growers, San Francisco

INCREASED production, sometimes called "overproduction," has disturbed the minds of the world for a good many ages. To find a cure we should try to ascertain the causes.

From 1917 to 1921 the farmers prospered, with the result that there was a decided back-to-the-land movement. Men planted orchards and vineyards and engaged in other lines of farming because of the lure of the profits.

We now are passing through a period of adjustment, or, in other words, a period of elimination. If there are too many people engaged in any one industry, the weaker ones will have to give way to the stronger.

It is un-American to destroy crops or to recommend the cutting down of production to raise prices. The food belongs to the world and we who are farmers are obligated to do our best with the land given to our care.

If crops were cut to the point that resulting prices caused the farmers to wax rich, more would engage in farming and we would find ourselves back to the starting point again. Therefore, cutting crops is not the answer. There is only one way to be a profitable farmer and that is to be able to raise a little larger crop at a little less expense to like investment than the average farmer does.

There is just one more point that should not be overlooked. Let us not eliminate the joy of "striving" in our desire to dispose of all the obstacles on our pathway to complete happiness. The struggle to be a success is the great joy after all, and one is not a success until he gets joy out of the struggle.

"It's Logical Plan"

JOHN S. COREY

Grass Valley, Calif.

I HAVE just read with great interest the article by Mr. Ray C. Gruhlke, and feel that I must give my comment. It is, in my estimation, the most logical reasonable and common-sense suggestion of any that has been offered by any of the would-be advisers of the farmer.

We have all been reading the suggstions from our most prominent politicians, from the President to Cabinet Members, Congressmen, Senators, and others of lesser caliber, on how to better the farmers' conditions. The Government has even gone so far as to appropriate vast sums of money so that the farmer may find it easier to get a mortgage on his farm that will be the pride of his grandchildren to pay off, but still the condition of the farmer is getting no better very fast. As Mr. Gruhlke states, we are maintaining an expensive Agricultural College to assist in getting the back-to-the-farm idea well established, so that a lot of worn-out city people will get the notion to get a farm where for the first three or four years they may raise a lot of inferior crops which they dump on the market at any price they are lucky enough to get, and "bust" the price of good-quality crops that cost more money to raise.

I very certainly agree with the Solano farmer when he asks why he should worry as to what the food costs the consumer. For every producer there are many consumers, and when the consumer gets badly enough hurt by the middle-man, high freights, foreign competition, and the many other pests that are now bothering the producer, they with their multitude of voters and taxpayers will rise up and adjust things; but as long as they can slough it off on the farmer things will continue as they are!

A year or two of decreased production will do more toward adjusting things than all the suggestions that emanate from the Capital of the United States, the different agricultural colleges and the would-be advisers of the farmer.

When I was a youngster I worked in an office on the corner of Monroe and Dearborn streets in Chicago; it was the Commercial National Bank. Just across the street from us a large brick building was being erected. The bricklayers on this job were receiving $2.50 per day, and they were working when I came to work in the morning, and they were working when I left the bank for home at 4 o'clock. We bank clerks were receiving from $75 to $100 per month at that time.

The bricklayers after a few years organized, cut down the number of brick laid by each man by about half, cut the number of hours by several, and forbid having more than one "cub" or apprentice to so many men.

What was the result? The bricklayer now gets just about what he asks for pay, and the bank clerk who did not organize is still getting from $75 up, with absolutely nothing to say as to whether he works next day or not. Today you can go out on the street and pick up any number of office men who are looking for work, but can you find a bricklayer looking for a job?

It is getting tiresome to hear that old saying about the farmer not having anything to say about what his crops will bring nor what his requirements will cost, but if the farmer will do as the bricklayer, carpenter, machinist, butcher, engineer, or any other of the so-called skilled labor trades are doing and have done, a condition will arise that will surprise the farmer, for he will be able to state to the buyer of his produce the price he will sell his crops for, and will have some voice in the price he pays for the goods he needs.

For myself, will say that for the past few years, even though it is in a very small way, I have been practicing what Mr. Gruhlke advocates. I have disposed of over half of the cows I was milking, am farming less than half of my acres that were under cultivation and could be again if there were any money in it, and in most ways am only marking time until some rearrangement of conditions is made.

Why should I work 12 or 14 hours per day at hard labor to produce crops to sell in competition with my neighbor, making it impossible for either of us to make a living such as our labor and investment entitles us to?

There is one thing I would like to say about these advisers who are trying to show the farmer the right way out of the slough. They are all doing it with the very best intentions in the world, but I have noticed that the most of those with whom I am acquainted and have conversed with, and those whose articles have occupied space in the papers, are gentlemen who have in no way the slightest real connection with the actual task of digging a living out of the ground.

I really believe that the farmer who conducts a prosperous business is the hardest working and also the most intelligent business man there is in this country today, and he is perfectly able to solve his own difficulty and get out of it, when he has ceased to feel a responsibility to his city neighbors and lets them do their own worrying; when he has done this the whole country will be better off.

Good Arguments Pro and Con

WHEN Ray C. Gruhlke, Solano County farmer, wrote the editor of ORCHARD and FARM suggesting a remedy for low market prices, he "started something." On this page are given some of the views expressed by other subscribers. Unfortunately space is not available for all the interesting letters received.

In brief, Mr. Gruhlke pointed out what he termed the fallacy of encouraging greater production when apparently we are suffering now from overproduction of most farm commodities. He asserted the right of organized farmers arbitrarily to reduce their crops as much as 50 per cent and suggested that it is "up to the consumer to take care of the middleman."

He showed that such conditions as frost damage and drouth invariably result in higher prices for the commodity affected and drew the conclusion that curtailment on the part of the producers would have the same effect. "Let our unfilled orders be the index of each year's activity," was Gruhlke's battle cry. *The Editor.*

"Depends on Man"

M. ELDRIDGE CLAY

Willits, Calif.

TO COLLECT and dispose of Mr. Gruhlke's box of evils were to dispose of the whole farmer problem off hand. This article will confine itself to actual observation and to merely two points. *(Continued on Page Ten)*

Selling Sonoma Apples Co-operatively Presents Difficulties

Sebastopol Apple Growers' Union Losing Members During Present Period of Low Prices

By O. H. BARNHILL

DOES the selling of Sonoma apples co-operatively involve difficulties?"

"I'll say it does!" admits E. C. Merritt, manager of the Sebastopol Apple Growers' Union, which handles the bulk of the crop—perhaps 70 per cent—grown in that dis[illegible]

"We are confronted with the [illegible]em of shipping a perishable prod[illegible] most of it in midsummer. 3000 [illegible] and selling it for profitable prices in markets supplied with an abundance of local fruit.

BARNHILL

"The only way we are enabled to obtain good prices is by offering the trade the best apple on the market at the time we sell the bulk of our crop. Our Gravensteins are universally admitted to be among the finest apples grown and nowhere else are they pro[illegible] quantities. They are on [illegible] in August when there are [illegible] apples ripe. This gives [illegible] by which we have [illegible]

[illegible] our Gravensteins, [illegible] per cent of our [illegible] brought $1.23 for the [illegible] which comprised 85 per [illegible] boxes of Graven[illegible] while unde[illegible] the high [illegible] very [illegible] grower. [illegible] apple section of California, winter apples were kept for months in cold storage and then taken out and dried, because it was found impossible to sell them at anything like a fair price.

"It is true," continued Merritt, that some of our growers have blamed the Union for the low prices which have prevailed during the past two years, but that is the common fate of all co-operators. When prices are good new members keep coming in and all is lovely; when prices drop, complaints and criticisms of the management are indulged in, while some members withdraw and sell their crop to private dealers.

"In December it was proposed that we have our apples marketed by the California Fruit Exchange instead of shipping to commission firms and private brokers. This was put to a vote and lost. About 10 or 12 per cent of our members withdrew, however, and 50 of them at Forestville have formed a marketing association of their own."

The Sebastopol Apple Growers' Union is a stock company organized 13 years ago. The present amount of stock outstanding is about $200,000. On December 31 it owed $70,000, but had $86,000 in cash and bankable paper. In addition, the supplies on hand at that time inventoried $38,000. The plants and equipment were valued at $212,000, of which $34,000 was charged off for depreciation. For contingencies, a reserve of $15,000 was set aside and an appropriation of $18,000 made for advertising.

Growers' ten year crop contracts may be terminated February 1 of any year, remaining in effect if not so terminated. The interest paid on capital stock is determined by the board of directors. The surplus, or net profits, is apportioned at the close of each year to the members in the form of additional stock. This stock sometimes is sold, the present value being 75, according to one of the officers of the Union.

E. O. Nelson, who helped organize the Union and has another year to serve as director, was one of those who last winter canceled his crop contract. He owns $3000 worth of stock and each year raises about 33,000 boxes of apples, being one of the largest growers in Sonoma County.

"Why did I withdraw from the Union? Because it has cost me $30,000 to belong and I didn't feel that I could afford to stand the expense any longer," explained Nelson, in answer to a question. "Every year but one the Union has paid its members lower prices than outsiders received."

"If you thought the Union wasn't being run right, why didn't you and other members change the management?"

"Sounds simple," admitted Nelson, smiling reminiscently. "You see," he explained, "our association is not truly co-operative, having been organized before the present law governing co-operatives was passed. Every member does not have an equal voice in the Union. Stock, not the individual, does the voting. This makes it possible for interested parties to secure the proxies of stockholders who do not attend the meetings and control the voting."

"Then why don't you reorganize under the new law?"

"We'd like to do so, but can't because of conditions just explained. The change would cost $1000, which is given as an excuse for not making the improvement.

"Under the present plan, when a member goes out of the orcharding business or moves away he still retains his membership and voting power, so long as he does not sell his stock. This 'dead timber' seriously interferes with efficient management of our Union. Although we have about 1100 members, only about 750 are active growers, counting out the 100 at Healdsburg, where we have not rebuilt the plant which burned down. About 150 recently have withdrawn, which makes the percentage 20, instead of 10 or 12."

Packing plants now are operated at Sebastopol, Santa Rosa, Graton, Forestville, Molino, Sagh, Barlow, Story Point and Trenton, there being two buildings at each of the two points first named. The great number of varieties grown, 44, greatly complicates the selling problem. Less than 100 boxes each were turned in of eight sorts.

The best paying apples for Sonoma County, according to Merritt, are as follows: Gravensteins, Jonathan, King, Spitzenburg, *(Continued on Page [illegible])*

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(More than all California farm journals combined)

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY
By THE EDITOR

SILLY SENTIMENTALITY

Because in certain experimental work it is necessary to use live animals, the United States Department of Agriculture on various occasions has been accused of practicing unnecessary cruelty. Also it has been blamed for permitting cruelty in the handling of animals. Such accusations are without reasonable foundation, says Dr. John R. Mohler, chief of the Bureau of Animal Industry, who maintains the Department's efforts have resulted in the prevention of suffering by millions of animals and human beings.

And the U. S. D. A. is not the only institution that has taken cognizance of the meddling of silly sentimentalists. Hospitals and scientific institutions, which have made discoveries of inestimable value to the human race, have come in for their share of criticism because of the necessity for using guinea pigs and other animals in their experiments.

No one with a grain of kindness wishes to see animals suffer unnecessarily. But, as a matter of fact, most experiments are carried on in such a manner that the animals used experience little, if any, pain or inconvenience. Let us find some better outlet for our kindly impulses than by obstructing the work of learned men who are no more cold-blooded than the rest of us, and who, in fact, are working constantly towards the RELIEF of suffering!

ARE IMPLEMENT PRICES FAIR?

"What Are the Facts?" is the title of a little booklet issued recently by the National Association of Farm Equipment Manufacturers, comprising 240 makers of farm machinery.

The answer, contained in the booklet, is the declaration that farm machinery prices are not unreasonably high and that the farmer who gets along without needed equipment is practicing questionable economy.

The Association maintains that 20 of the leading manufacturers lost $50,000,000 in 1921 and 1922. It is pointed out that volume of sales has fallen off 53 per cent despite the fact that implements average in retail price 13 cents per pound as against 14 to 81 cents for miscellaneous articles the farmer buys. Present manufacturing costs do not permit of further price reductions, it is asserted.

After all, the fair way to approach this question is for the prospective buyer to weigh against the cost of the machinery his chances to profit by its use. Very often, upon reducing the problem to a dollars-and-cents basis, he will find that the investment in new equipment is justified, even though prices appear high in proportion to what he receives for his produce.

One way to beat agricultural hard times is by practicing greater efficiency; and nothing increases efficiency like good machinery in good working order.

PRIZE WINNERS ANNOUNCED SOON

Announcement of awards in the prize contest on "A Look Into the Agricultural Future" will be made in the next issue of ORCHARD and FARM. So many excellent letters were received that the judges have not had an easy task, but at last the entries have been sifted down to a "favored few," of which the winning ones will be published.

Fortunately for our State and country, the people are showing an inclination to think more in terms of conservation and less in terms of exploitation. The rights of Posterity are not to be regarded lightly.

WHAT'S NEW? Keeping Abreast of Agricultural Progress

An Avocado Picking Bag

FLORIDA avocado growers are said to be much pleased with the canvas bag invented by Hamilton Michelson of that State. Carried at the end of a long bamboo pole and fitted with a hook for severing the fruit, it is used successfully to gather fruit from the tops of tall trees and is said to prevent bruising.

Editors Talk Via Radio

TALKS by members of the ORCHARD and FARM staff recently have featured the radio programs broadcast by The Los Angeles Examiner (Station KFI). Among those who have assisted thus in spreading the gospel of better farming are Dr. J. Eliot Coit and Ralph D. Cornell contributing editors. The former spoke on avocado growing and the latter on landscape gardening.

Give Gardening Lectures

A NEW feature of Farm Bureau work has been inaugurated by the Agricultural Extension Service of Los Angeles County in co-operation with the Los Angeles Chamber of Commerce—a series of lectures on home gardening and the care of fruit trees, shrubs and plants.

A city center of the Farm Bureau is in charge of the program and has arranged for one lecture each month until fall. This service was inaugurated in response to an insistent demand on the part of thousands of "back yard farmers" in the Southern metropolis.

Chestnut Blight Spreading

THREATENED extermination of the chestnut industry of the East and South by the blight, which causes cankers in the bark, is recognized by the U. S. Department of Agriculture despite press dispatches to the effect that the disease is becoming less virulent. It is said, in fact, the dread canker is spreading through the chestnut districts at the rate of 25 miles a year, having in the short time since its introduction (presumably from Asia) invaded three-fourths of the commercial area. So far no method of controlling it has been discovered. California horticulturists look upon this situation as most favorable to the development of the industry here, since the blight so far has not made its appearance in this part of the country.

Fighting Insects From Plane

A GREAT bird, rushing through the air and scattering a cloud of white vapor behind him—that is one impression the observer gets from a new United States Department of Agriculture motion picture, "Fighting Insects With Airplanes." The film says the experiments have proved the airplane to be of practical value in this work, that planes have been used successfully in combating the cotton boll weevil and the cotton caterpillar, and apparently will be successful in controlling many other insects; that one plane should care for at least 5000 acres of cotton through a season, while the largest ground-dusting machine will care for only 100 acres; and that is believed the cost of dusting is less when the airplane is used than when it is done with ground machines.

O. I. C. vs. Chester White

REORGANIZATION of the O. I. C. Swine Breeders' Association is in progress with a view to admitting both O. I. C. and Chester White hogs to registry in the one association, but in separate departments or columns, by placing the O. I. C. hogs on one side of the line and Chester Whites on the other side, keeping them entirely separate so far as the individual registry is concerned.

A recent court decision made it plain that the O. I. C.'s are a separate and distinct breed, but other record agencies are registering them simply as "Chester White." It is believed that this is wrong, unfair and untruthful insofar as the blood lines are concerned, and it is believed the proposed O. I. C. method will straighten out these difficulties and give a clear ancestral registry to the great benefit of both the O. I. C.'s and the Chester Whites.—F. B. WHITE.

Ladies, Here's Recipe Book

AN INTERESTING experiment in advertising featured the 1923 campaign of the California Walnut Growers' Association. Previous experience having shown that many who answered the Association advertisements in women's magazines were children and curiosity seekers, it was determined to publish a loose-leaf book, indexed and containing blank pages for favorite recipes, to be sold for $1.

No advertising appears on these attractive books, which are 6x8 inches, have cleanable fabricoid covers and open flat. The walnut recipes, however (of which there are 40), are profusely illustrated.

The association feels that in sending several thousand copies of this book all over the United States and to foreign countries, it has accomplished much good for the industry—especially as the walnut recipes are likely to be seen whenever the housewife consults others which she has pasted or written on the blank sheets. A few of the books are still on hand. Any ORCHARD and FARM reader desiring one may remit $1 to the main office, 1745 East Seventh street, Los Angeles.

Farm Power Shortage

IN VIEW of the recent cut in allotments of electric power reducing the current available for farmers of seven Southern counties by 30 per cent, a resolution was forwarded to the State Railroad Commission asking that emergency measures for the relief of farmers be enacted. It was suggested that all display, billboard and subdivision advertisement lighting be discontinued and that street and window lighting be reduced 50 per cent.

Coyote Poison Campaign

THAT even an ill wind can blow some good is indicated by the fact that, as a result of the foot-and-mouth disease, an intensive campaign to destroy coyotes and bobcats has been conducted successfully in the quarantined counties. Although the primary object was to prevent their carrying germs of the disease, the heavy casualties are viewed with satisfaction by poultrymen and stock farmers. Poison baits were used under the direction of State and county officials.

Banks Keep Farm Books

BOOKKEEPING admittedly is one of the average farmer's weakest points. Realizing this, the Sun Maid Raisin Growers tried furnishing an expert to show members how to keep their accounts.

The plan worked fine, as long as the expert remained on the job. When he quit, farm bookkeeping once more was generally neglected.

In Napa County a new plan is proposed. One bank in each community is to employ a man whose special duty will be to help farmers keep their accounts. A small charge will be made for this service, just enough to pay the expense.

Calif. Crop Report Released

THE California crop report for 1923 is now available to all who are interested in California statistics. It contains the annual summary of the Co-operative Crop Reporting Service including estimated acreage, production, farm prices as of December 1, or at time of harvest, and the total value to the producer of California crops grown in 1923, with comparisons for the four previous years.

The estimated number of different classes of livestock by counties, as of January 1, 1922, 1923 and 1924, with the estimated farm value per head of different ages or sex of such classes of livestock, also is given.

It presents briefly a story of the agriculture and horticulture of the State during the past year. It is a final estimate for the year of all crops named, obtained by a thorough revision of the preliminary estimates of acreage and yields per acre.

Copies of the report may be secured by addressing: Agricultural Statistician, P. O. Box 1205, Sacramento, California. (Mention ORCHARD and FARM.)

Reveries of a Rhymster
By JASON WELLS

OUR farm's been invaded; in fact, confiscated—
Infested, congested—production arrested,
By an insect rapacious; so very tenacious,
Each one has succumbed to its ravenous bite!

FIRST father, then mother, then sister, then brother
Has caught the infection, each worse than the other.
Our work is neglected; conditions are wretched,
And never corrected from morning till night!

IT has no apologist, no entomologist
Claims to destroy it by praying or spraying
Once bitten, the victim, so does it afflict 'em,
Is stark, staring crazy and fit for the "jug."

YET never despairing nor aught even caring
We're seeking no cure or relief from its furore.
In fact, we adore it and holler for more, it
Has made us all happy—this Radio bug!

~dont pay till you try it

It costs you nothing to try our paint. If, after using two gallons, it doesn't seem worth the money, the two gallons are on us. Here is our offer.

To introduce our high-grade factory paints in every community, we are making a *special one cent offer* this week on our leader OLD IRONSIDE - a ready mixed lead zinc and oil house paint for only $2.95 a gallon. For *each gallon* you order at this special low price, we will give you *another gallon* for only

ONE CENT!

Send no money. Simply order whatever amount you need. Use two gallons. If satisfactory, pay only $2.95 for the first gallon, one cent for the next, etc. You save $2.94 on *every other* gallon you order. If a trial doesn't convince you this is the biggest paint value ever offered, return the unused part and you owe us nothing.

SEND NO MONEY

Just copy or use the coupon below, filling in the line marked "reference," or, if you prefer, send check or money order and omit reference.

You take no risk. The paint costs you nothing if it doesn't please.

UNITED PAINT CO.
Dept. 8, 823 Loew Bldg. Los Angeles, Cal.

I am interested in better paint and lower prices. You may send me ..... gallons of OLD IRONSIDE, color ..... If, after using two gallons, I find it satisfactory, I agree to remit $ ..... If I decide it is not worth that amount, the two gallons cost me nothing and I agree to return the balance within 10 days with no further obligation.
Name .....
Address .....
Reference .....
Address .....

THIS WEEK
One Cent Sale!

Proof

The increasing custom among owners of tractor fleets to standardize on "Caterpillar" Tractors is gratifying proof of "Caterpillar" value and economy. These users are enabled to check performance in daily work. Their experience proves the advantage of investing in "Caterpillar" design and construction. Write for catalog describing models ranging from 15 to 50 drawbar horsepower.

There is only one "Caterpillar" —Holt builds it

CATERPILLAR Reg. U.S. Pat. Off.
HOLT
STOCKTON, CALIF.
PEORIA, ILL.
San Francisco Los Angeles Spokane

When answering advertisements please mention this paper.

HOME FARM HAPPENINGS

By ONE OF US

THE SHEEP SHEARING PROBLEM

W. S. GUILFORD

Our sheep were shorn during the first week of March, this year—a little earlier than usual. Frank Dunham of Colusa did the job, using one side of a two-man machine shearing outfit. The price this year is 18½ cents per head, the highest we have ever paid.

The machine does a neat, clean job. Some claim that the fast running blades have a tendency to scorch the wool and discourage wool growth, but how this can be true is difficult to see.

There is less grease or yolk in the wool when shearing is done before warm weather comes, but the sheep seem more comfortable with the wool off, particularly if there is plenty of barn room to shelter them if there should be a cold rain or storm.

The plan is to shear again in July, and "flush" the ewes with some green feed—something to act as a physic—to see if they will not breed earlier.

WOOL PROSPECTS ARE GOOD

The sheep are all in splendid condition this spring, and a fine, husky lot of lambs are coming, with lots of twins among them.

Prospects for a substantial price for this wool seem good. Ours is being sent to the Wool Growers' Warehouse at Vina for the spring sale.

This co-operative selling organization which handles wool only, and which has only one object: to get as nearly as possible a fair price judged by world's market prices on the day the wool is sold—is a mighty satisfactory outfit to do business with.

Prices have always been higher than could have been secured from local buyers and returns come within two or three days after the sale. The sale date is determined by a committee of interested, representative growers. This way of handling wool has been a big thing for the small growers of our county.

EARLY IRRIGATION PRACTICED

Irrigation started early. The ground was dry March 15 and while there will probably be plenty of rain, the irrigation water will do no harm and if the rain does not come in abundance, everything will be all right anyway.

There is a possibility that both late fall and early spring irrigation, regardless of the rains, will be put in practice. This would assure the "plumping up" of fruit buds and vigorous early spring growth.

Many new water applications have been filed, according to report due to the dry winter.

Our water all represents riparian (first) rights from the Sacramento river, but just to have them of record with the State Department, we have made a filing for the entire acreage. This will permit us to file maps, showing pumping sites, areas irrigated and all such data, further strengthening the riparian rights and making a permanent record of them.

Each season more firmly convinces us that water is more of a limiting factor in all kinds of crop production than is generally supposed.

On perfectly drained river bottom land, where there is absolutely no danger of water logging, this is especially true, and we will use more water this year than ever before.

After enough moisture has been supplied to make a fair crop, the cost of additional water to make a maximum crop is nothing compared with the difference in value between medium and large tonnages, to say nothing of increased value on account of size.

SPRAYING OUT OF WAY

Spraying with Barium Tetrasulphide for peach leaf curl and twig borer, and for pear leaf blister mite, is finished, the job having been done just as the buds were swelling.

Now the spray rigs are all cleaned out and ready to catch the pears as the petals are falling, for codling moth.

A spray rig gets clogged up with sediment and trash very easily, and it is a good investment to spend some time in cleaning it out.

There is always plenty of north wind in the spring *(Continued on Page 8)*

money Coming in

When you use a *New* De Laval

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Radio on the Farm—1. Market and Crop Reports

By DR. RALPH L. POWER
Los Angeles Radio Studio "Sky Crier"

RADIO provides varied service for the farmer; in fact, it may almost be regarded now as an integral part of the necessary business equipment of the efficiently operated farm.

Nowadays the receiving set is to the farmer what the ticker is to the speculator in farm products. It is the equipment that will place the farmer on even terms with the market manipulator.

DR. RALPH L. POWER

The giving out of market news and weather and crop reports obviously is one of the functions of our broadcast stations. It is hardly necessary to argue with an intelligent farmer about the benefit of advance knowledge of weather and markets.

Those who live in the open places, far removed from the centers of population and industry have peculiar problems, the direct result of their occupation and environment. To them radio is especially able to demonstrate its true worth.

WHAT'S ON THE AIR?

From Monday to Friday inclusive, tune in on the Portland Oregonian KGW broadcasting on 492 meters, and hear the market reports and weather forecast at 7:30 p. m., Pacific time.

KFAE, the State College of Washington, in Pullman, broadcasts talks to farmers occasionally, as does the State University of California in Berkeley through KLX, the Oakland Tribune.

KGO, the gigantic station of the General Electric Company at Oakland, 312 meters, on week days at 1:30 p. m., Pacific time sends out the weather reports and news of the New York Stock Exchange.

The Fort Worth Star Telegram, WBAP, at 476 meters, and the Chicago American, KYW, also send forth interesting and useful news for farmers at intervals.

Notices of approaching storms of periods of drought, of bright harvesting days—all these come via the ether waves. Current crop reports from various sections of the country, market prices, news of epidemics—everything of possible interest to the farmer becomes available through receiving sets.

Farm lighting plants, tractors, phonographs, milking apparatus and cream separators, all have demonstrated their true value and worth despite prejudice and precedent.

The radio is here to stay. Today's receiving sets are totally different from those of a few years ago. The sets of 1930 will be as different from those of today as a changing civilization can make them. The radio will become the most indispensable part of farming equipment.

[Editor's Note: Additional articles by Dr. Power concerning the fascinating wonder of the age, Radio, and its value to farmers will be published in later issues.]

Farm Bureau Does Big Business

Tulare County Organization Achieves Unusual Success in Conducting Commercial Activities

THAT the Tulare County Farm Bureau now is by a big margin the largest in the State may be no news to most farmers. But however good its work, in other lines, there is little question but what its commercial accomplishments are more responsible for its large membership and for the enthusiastic support of the members than any other one thing.

ALLEN THOMPSON

This fact is important, since it has happened frequently that other farm bureaus have failed in business ventures about as often as they have succeeded.

Rather a significent fact in connection with the success is that Allen Thompson, secretary manager is and has been for years, a successful farmer. He is therefore a good manager and has the farm viewpoint to the last dot.

Tulare is one of the big counties in the Farm Bureau hog auctions, having sold 22,395 hogs during the past year at a valuation of more than a third of a million dollars. There is also a county grain exchange, both of these activities being connected with inter-county organizations.

The big thing in strictly county business is the purchase at wholesale prices of various farm supplies. Last year 103 cars of grape stakes were bought for members at a saving of from $2 per 1000 for purchasers of car lots, to $16 or $18 per 1000 for small quantities.

Other purchases were three cars of paper trays for raisin growers, 5 cars of shook for wooden trays, sweat boxes, etc., 3 cars of sulphur for mildew, three cars of nitrate of soda for fertilizer; 80 tons of wire; large amounts of spray material delivered from the warehouses at wholesale rates, and one car in addition direct from the factory.

FIELD SEED PURCHASED

Likewise 10 to 12 tons of melilotus and other cover crop seeds were bought, as well as large quantities of alfalfa seed.

The idea is to avoid everything that looks like building up a general purchasing line, but anything that the farmer needs to produce crops efficiently is considered all right for a farmer's organization. Nothing is carried in stock. Orders are taken for goods and the amount ordered is purchased from the jobber, while the farmers come to the car and unload their portions. Often, however, a surplus is ordered to make up a carload when it is certain that orders will come to take up the surplus before the car arrives.

The owner of a small ranch recently developed from raw land remarked to the writer the other day that he had saved $150 in farm supplies bought through the Farm Bureau.

The work has grown so that Thompson can not attend to it all, and W. S. Winans, secretary of the Lindsay Farm Center, now is putting full time on the work as field man and assistant.

Various other commercial activities are important. Considerable miscellaneous farm supplies are secured for members at reduced rates. Arrangements have been made with several garages for reduced rates to members on garage work, batteries, tires and supplies. The Tulare cold storage plant was started through the initiative of the Farm Bureau, although operated under private ownership, more than $5000 worth of calves have been vealed and sold. Two lime-sulphur associations make spray material for fruit growers.

NEW FRUIT ASSOCIATION

The Lindsay Farm Bureau Fruit Association was organized as the first one in the State. This is a member of the Federated Fruit and Vegetable Association, the marketing organization started by the American Farm Bureau Federation. This association was started last summer with seventy-five members, representing 1400 acres, about two-thirds of which are citrus.

It is stated this concern led all competitors in the prices secured for fruit shipped and that membership assessments—that is, payments for stock—were more than made up in savings of packing charges. This, however, like the lime-sulphur associations, is not under the management of the County Farm Bureau at all.

Very naturally the Farm Bureau in its non-commercial activities is a great success, but we are not talking about that now. A glance at the general line of purchasing done shows that no effort was made to do great things, but just to buy the important commodities needed in largest quantities.

Realizing this is almost the only county in the State that has done such work at all extensively, the writer feels the reason is largely that there is a successful, practical farmer at the helm, and that the work has been built up gradually and in proportion to the demand.

As an aside it can be said that although it would be a mistake for any county farm bureau to undertake such work unless it was sure of [illegible] with it, Thompson is convinced from his purchasing experience that if every county Farm Bureau bought as this one does, the purchasing power of farmers all over the nation would be greatly improved.

TULARE FARMER.

Town Organizations to Help Farmers

HOW much can a town or city Chamber of Commerce do toward aiding the farmers? It depends to a great extent on the farmers themselves, points out H. J. Beidleman, [illegible]ot of the Visalia (Tulare County) Development Bureau.

"If the agriculturists will simply make their needs and wishes known, I am sure I speak for all Chamber of Commerce officials in saying the town organizations will do their best to help the cause," says Beidleman.

"Last year, during the fruit harvesting season, our Chamber placed 574 workers on farms in nearby districts. We are anxious to help agriculture because we know our prosperity depends to a great extent upon the prosperity of our farmers.

"Often the Chamber has more influence than even farm organizations. We can get things done because we are organized for that purpose. Recently here in Visalia we prevailed upon the railroad company to spend several thousand dollars fixing up stock pens and loading chutes which were unsatisfactory to farm shippers."

The Sacramento Chamber of Commerce maintains free parcel checking service and other facilities for farmers and their wives who have shopping or other business in the city, and has been active in the movement for naming country streets and numbering country homes.

The Fresno Chamber has featured agricultural talks at its meetings and has met farm organizations more than half way when opportunities presented.

In fact, it would be difficult to name a California town where the business men have an organization, which has not reached out the hand of fellowship to the tiller of the soil!—J. C. K.

Significance of Butterfly Migration

ONE of the most extensive butterfly migrations ever known in Southern California has been taking place during the first two weeks of March. The migrating species is one that is known to have the instinct to search for other feeding grounds when necessity demands that it should do so.

While some entomologists have thought these migrations were made blindly and with no definite value to the species, this season's migration would seem to furnish much evidence to the contrary. Instead of being in blind flight the insects are apparently seeking for host plants upon which to deposit eggs, and in all probability because of the scarcity of such plants in the region where the migration began.

That butterflies would travel hundreds of miles in order to find food for their progeny, they themselves dying after ovipositing, is something hard to imagine, yet this is exactly what happens. Some of the migrating horde have come north from the Imperial Valley and perhaps south of the California line in Mexico and have not stopped until they reached the Santa Barbara coast region.

The butterfly which is migrating is a species known as the "Painted Lady," or scientifically called Pyrameis cardui. Its favorite host plants are thistles and malva. In Southern California malva grows wild everywhere, and is one of the chief natural cover crop plants found in orchards.

Recently the female butterflies have been laying eggs on this plant until it is difficult to find a leaf that does not carry from one to a hundred or more eggs. On one leaf 137 eggs were counted.

Occasionally this species has been known to attack some of our crops of economic importance; for example, beans and spinach. There seems to be a widespread notion that this migration presages an armyworm infestation. Such is not the case, however, the army worm being the larvae of a moth. Little alarm should be occasioned by the interesting migration of the "Painted Lady."—GEORGE P. WELDON.

Give the Grass a Fair Chance to Grow

RANGE rejuvenation is one of the most vital problems of all California counties where livestock grazing is a leading industry. Here in Marin County, where a fifth of a million acres of land is used for pasturing dairy cows, the question is particularly acute.

Everybody admits and deplores the "run down" condition of our pastures. Few persons, however, attribute the unproductive state of our native grass land to the true cause—over pasturing. We have some dry seasons, but weather records over a long period show there has been no general change in the amount of rainfall.

Early settlers tell of the rank, luxuriant growth of wild oats and other native grasses which originally covered the green hills of Marin. Overstocking of the range has almost exterminated some of these valuable grasses. In places, which have been crowded out by weeds. The wearing out of our pastures has been so gradual that few realize how the crop has depreciated.

It is only necessary to keep stock off the land a short time each year to permit reseeding of the range. By a system of rotation pasturage the rejuvenation of an entire range can be accomplished in a few years.

In the National forests, ranges have been improved 20 per cent by intelligent management. In Shasta County a stockman improved his range 300 per cent and sold his grass-fed steers for a good price without giving them any finishing feed. By similar methods, Marin pastures might be improved 25 to 250 per cent.—M. B. BOISSEVAIN, Marin County Farm Adviser.

Use Shovel to Determine Soil Moisture

IT is strange how many persons there are who apply water to their orchards according to a schedule prepared by some water company, and who seldom if ever dig a hole to find out the condition of the soil so that something definite may be known as to the moisture requirements.

Intelligent application of water implies an accurate knowledge of soil moisture conditions. How can this accurate knowledge be obtained? There are two ways that can be safely recommended. one requires the use of the soil auger, the other the shovel.

Soil augers of the ordinary types are good only for use in soil that contains [illegible] and is reasonably free from [illegible]s. In soils of the light, sandy [illegible] a hole made by a soil auger will not remain open after the auger is removed, and the soil will not adhere to the auger sufficiently for an examination; therefore, a shovel must be used.

An examination of the soil in the shovel hole should reveal the presence of sufficient moisture to make it possible to mold the soil so that it will stick together, not in a sticky mass, but just enough so that it will not fall apart readily.

This condition should pertain from near the surface to a depth of four feet or more. It is in the first four feet of soil that most of the roots of our deciduous trees do their feeding. Last season there was much small fruit because of dry soil. This spring the rainfall up to the present has been exceptionally light, and a repetition of last season's condition seems probable.—GEORGE P. WELDON.

Watch For Twig Borer at This Season

FREQUENTLY young trees which were not treated with the lime sulphur spray in the spring develop an infestation of the twig borer or bud [illegible] common pest of peaches and [illegible] fruits.

[illegible] infestation may interfere [illegible] with the growth and development of certain well placed branches [illegible] has selected for the [illegible] work of the tree.

[illegible] of the pest may be [illegible] frequently almost com[illegible] may be accomplished by [illegible] lead arsenate at the [illegible] pounds of paste or 1½ [illegible] gallons of water [illegible] between [illegible] forms of lead [illegible]

As the little larvae or worms feed first on one twig and then on another, they will assimilate a poisonous dose of the arsenic and die. Even bearing trees of peach, apricot, almond and plum varieties, when dormant control measures have been neglected, can be sprayed successfully with lead arsenate.

However, all of the arsenical preparations may do slight injury to the tender foliage of the peach and should be used only in case of necessity. It is seldom that a lime sulfur sprayed orchard is in need of any attention as far as twig borer is concerned, as the dormant spraying with this material if properly done, will result in perfect control.—GEORGE P. WELDON.

The Alfalfa Aphis

IN the Chino section of San Bernardino County, there has recently been in alfalfa fields quite a serious infestation of the pea aphis, scientifically known as Macrosiphum pisi.

Naturally growers of this crop have been greatly alarmed, and have feared that it might continue to be a pest throughout the summer. Since there are no practical methods of control such as spraying, it is fortunate that the pest in all probability will disappear in a few weeks at most.

When an aphis pest like the one causing the damage to alfalfa becomes very abundant there are always myriads of natural enemies that become abundant also. Among the enemies of aphis are the lady bird beetles, syrphus flies and lacewing flies. When these beneficial insects breed to such an extent that their food supply, the aphis, is small in comparison to their own number, there is rapid diminishng of the number of aphis and soon the infestation is under control.

There is every reason to suspect that the present infestation of the pea aphis will be controlled by natural enemies which now are breeding in the fields by the millions.

Poultry Lice Go Like Magic

Open Can of New Liquid Is "Poison Gas" to Vermin

Poultry raising for profit is now made easy so far as the awful losses that have been sustained every year from lice and mites. Hens cannot lay or hatch; baby chicks cannot thrive and grow when your fowls, poultry house, coops and nests are infested with these pests.

Dips, greasing and other expensive and cumbersome methods are no longer necessary. Vapo-Nox, a new liquid, makes it easy and simple to be rid of these pests often in a few hours. Simply hang an open can of this amazing liquid in the hen house, and sprinkle a little of the solution on the nests and coops. That's all. Powerful gas given off by vaporation is "poison gas" to vermin, but harmless to poultry or humans. Indorsed by Farm Bureau experts. Economical and easy to use. Guaranteed to do the work.

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ORDER NOW. White Leghorn baby chicks from purebred stock. Ferris strain. Only pedigreed cockerels of 228 to 301 egg records used. Also R. I. Reds, dark, large, heavy layers, make profitable broilers. Write for attractive prices on large or small orders. Satisfaction guaranteed. Anderson's Hatchery and Poultry Farm, Modesto, Calif.

PEERLESS WHITE WYANDOTTES, ATKINSON PEERLESS ANCONAS—I am originator and breeder of "Peerless" strain birds for 20 years. Leading prize winners at largest poultry shows. Official egg records 242 to 261 eggs. Mated pens, cockerels, hatching eggs. Illustrated catalog free. J. W. ATKINSON, Box 10, 130 So. Willard Ave., San Jose, California.

WE'RE BOOKING CHICKS for most spring weeks from some of World's highest egg-producing Leghorns, Anconas, Reds, Rocks, Minorcas, Brahmas, Wyandottes, Andalusians, Orpingtons, reasonable. Reduced booked ahead. Capacity 200,000. "Your chicks are stronger and beautiful; your hens heavy winter layers." Write Bred-to-Lay, 1333 Ingraham st., Los Angeles, Calif.

CERTIFIED BABY CHICKS from inspected flocks. All hens have undergone rigid inspection; mated with males having authentic trapnest records of at least 200 eggs on the side of both parents. Certified by Alameda County Poultry Breeders' Assn. Now booking orders for fall and spring delivery. Utility prices. Chanticleer Elec. Hatchery, Inc., Hayward, Cal.

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WILDBLOODED-BRONZE Breeding Toms, Hens and eggs. A small flock ready to herd. Write for prices of each. JENKINS, Route 3, Box 1176, Burbank, Calif.

CASA DE ROSAS TURKEY RANCH, Carmel-by-the-Sea, Cal. Engage your GOLD BANK BABY TURKS now. Special reduction chicken sale, prize stock. Creation Brown Leghorns, pens, chicks, eggs. Also Toulouse geese and Carneau pigeons.

FARM LAND FOR SALE

OUR BACK-TO-LAND PLAN—We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land, deep, rich, tried soil, complete irrigation with cheap water, thorough drainage, rail, water and highway transportation. Write owners. SUTTER BASIN COMPANY, California Fruit Bldg., Sacramento, Calif.

NO COMMISSION. Sell your farm direct to buyer. We put you in touch with thousands of buyers through our chain office service. Booklets of farms for sale by owners free. OWNERS' NATIONAL LISTING BUREAU, INC., 439-40 Roberts Bldg., Los Angeles, Calif.

POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, California.

SIXTEEN SECTIONS pasture for sale or lease. T. P. M'GINNIS, Kelton, Ariz.

FARMS WANTED

CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

FARM WANTED Immediately, from owner. Send particulars. MRS. ROBERTS, Box 83, Roodhouse, Ill.

FARM TRACTORS, MACHINERY

NEW and rebuilt implements at special prices. Call and see them. ARNOTT & CO., 114 S. Los Angeles St., Los Angeles.

ALMOND HULLERS with separating devices manufactured by DUEBEL & CO., 316 First, San Francisco.

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PIGEONS. Selected Silver King youngsters for sale. JAS. A. AVERY, Napa, Calif. R. R. 1, 704.

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HOMESPUN TOBACCO: Chewing, 5 lbs., $1.75; 10, $3; smoking, 5 lbs., $1.25; 10, $2. Pipe and recipe, free, pay when received. CO-OPERATIVE FARMERS, Paducah, Ky.

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ALFALFA HAY—No. 1 quality, prompt shipment. Inspect before paying. Buy direct and save money. Write or wire for prices your station. RICHARD NYMAN, Walla Walla, Wash.

SITUATIONS WANTED

WANTED—Employment as ranch chore-man, excellent refs., not rum kind. H. H. ROBINSON, Gen. Del., Oceanside, Calif.

HELP WANTED—Instruction

EARN $110 to $250 monthly, expenses paid as Railway Traffic Inspector. Position guaranteed after completion of 3 months' home study course or money refunded. Excellent opportunities. Write for free booklet G-91. Stand. Business Training Inst., Buffalo, N. Y.

BULBS AND SEEDS

LIPPIA LAWNS — Endure heat, drought, neglect, without injury. A beautiful lawn in reach of all, so small the upkeep. Write for booklet. HILL-GIRT NURSERY, Martinez, Calif.

Home Farm Happenings

Continued From Page Five

to delay the spraying operation, so that when you do get at it the machinery should work perfectly.

GOPHERS BAD THIS YEAR

The squirrel situation has been pretty well cleared up in this section, but there are more gophers than there have been for several years.

Grain fields on both sides of the river have hundreds of them, and there are plenty in the river bottom.

One of the several advantages of a flood over the river bottom lands is to kill gophers and other pests, but it takes lots of rain and very high floods that back out of the sloughs and over the lands generally, to kill many on the lands that are protected by the levees.

John Stainbrook, who poisons the squirrels in Levee District No. 3 on the east side of the river, and Al Prentice who has charge of the work on the west levee, both report that the levees are very badly infested with gophers.

Harvey Young, prominent farmer north of Butte City, says he has not seen gophers so bad for years, and that if there was a flood there would be some lively times watching levees.

BIG AND LITTLE SHROPSHIRES

A discussion has been going on for some time in Shropshire sheep circles about size.

One group believes that breed type should not be sacrificed for size, and that you cannot make Shrops big and also keep quality and extreme wool covering, quality of meat and easy keeping qualities for which the breed is famous. Some of these folk seem to think—if one can judge from what they say and write—that in order to be big a sheep must be long-legged and slab-sided.

The other breeders think that size is an important point in the Shropshire, that in order to supply the demands of range men and farmers the sheep must be big, but at the same time good.

They want breed type and compact form, wide back and loin, full leg of mutton and a good fleece—but they want it with a good, big sheep.

That this can be accomplished is demonstrated by the many flocks of big registered Shropshires on the Pacific Coast, in the Middle West and in Great Britain.

The animal objected to by the advocates of big sheep is the little wee, roly-poly sheep that is pretty and perfectly formed, perhaps, but not big and useful enough.

When you get them together there really isn't much difference between the two factions—they just do not quite understand each other.

WHAT BULL BUYERS WANT

There have been some interesting developments in connection with the bull trade for the past year or two.

In the first place every one evidently has held off until the very last minute before buying. The low price of beef made it necessary to do everything but spend money in order to get along.

Now things are looking up a little and many bulls either have died or are too old for much service.

What the average buyer wants is a registered animal that is a good individual—and he wants the animal to be so that he can tell it is good. He wants a rugged, big boned animal with a straight top line.

Buyers want the animals to be recorded and they demand the pedigree—but as to any particular "line" breeding, there is never a question. Sometimes they want to see the sire or dam, but not often.

It is the individual that counts which, after all, is as it should be.

CONTROLLING PEAR BLIGHT

An attempt will be made to control pear blight in Glenn County according to an announcement made by Horticultural Commissioner Kingwell.

Those who have the larger pear orchards have always attempted to blight as fast as it appeared.

Now it is proposed to serve legal notice on those who have only one, two or a few infected trees and if the trees are not attended to the commissioner will have the work done and charge the cost against the property.

Pear blight is very bad on pear trees some years, but there is a pear tree on the Jack Brough place south of Butte City, that is at least … years old, according to reckoning of John Williams and other old timers. This tree has no blight, bears regularly every year and looks as though it were good for 70 years more.

Selling Co-operatively

(Continued From Page 3)

Arkansas Black, Banana, Delicious and Rome Beauty.

The packing and handling charge is about 50 cents a box, leaving the grower only about 75 cents for the bulk of his crop last year, which, according to most estimates, should have brought at least $1 a box to return a real profit. This price was received before the war, when a dollar had much greater purchasing power than at present. As high as $2.25 was received during the period of peak prices.

"The California Fruit Exchange," explained Nelson, in response to a request for further light on the marketing situation, "is a Sacramento concern which has its fruit marketed by the California Fruit Growers' Exchange, a Los Angeles association. The latter employs salesmen in all principal market centers and it is only reasonable to suppose they could dispose of our apples to better advantage than the private brokers, speculators and commission merchants to whom our entire crop at present is turned over.

"All our New York shipments, 250 carloads, are consigned to a single commission dealer who is thus given a monopoly of our apples. I believe in competition among dealers. The more there are handling Sonoma apples the better prices we will receive. Brokers charge $25 a car for turning our fruit over to commission merchants, who charge 7½ per cent for selling it—15 to 20 cents a box."

"How about the efficient distribution made possible by one concern handling a large quantity? And how about different dealers glutting a market by working independently and over-supplying one point?"

"That is impossible under present conditions," explained Nelson. "By means of Government market reports all dealers are kept informed of the amount of fruit being shipped and receipts at important markets."

Charles H. King, another director of the Union and a large grower, also … satisfied with present conditions, but … going to stay with the organization … other year. "Neighbor Nelson will admit," states King, "that the market for Sebastopol apples is in much better condition than it would have been if we had had no selling organization.

"He also will admit that the … is a good thing for small growers and others who are unable to market their crop efficiently. As for the … prices paid by private dealers … prices were higher than … warranted, as proved by the fact … dealers lost large sums of money … the period mentioned."

"Let the Union pay higher prices … the independent dealers no matter … the temporary losses are," … R. Anderson, who grows 1… Gravensteins annually in the Sebastopol district. "That will force the independents to retire from the field."

"It requires a long, slow process of education to make a good co-operator out of the average farmer," … H. A. Weinland of the Extension Service. "Many growers turn over to the marketing organization the poorest of their products, which they themselves are unable to sell.

"The only solution of the … problem is to stay with the Union and help it to function as efficiently as possible."

MISCELLANEOUS

QUIT TOBACCO EASILY, inexpensively with pleasant Florida root. Not medicine. Send address. D. F. STOKES, Mohawk, Florida.

California White Leghorn Breeding Fa…

SUPERIOR ENGLISH LEGHORNS, INTERNATIONALLY KNOW…

THE WORLD'S BEST

Write for mating list on pedigree chix and hatching eg… chix sold to April 15. One half our output for April … sold. Hatching eggs now for sale from recent … to 318 egg records.

ECKMAN & MILLIGAN, Lankershim, Cal…

Your Garden of Flowers

By HELEN TEMPLE

SEED BOX SECRETS

Until this year I had never used flower seed of any kind. However, finding several packages of old Aster seed among my keepsakes, I rejected this idea and planted it.

HELEN TEMPLE

At the time of sowing the seed, I felt as though I were wasting my time, but it was so early in the season that I felt I could re-plant if it refused to germinate. The seed came from exceptionally fine varieties, so I was determined to use it.

I prepared shallow cigar boxes for each variety, providing good drainage, and sifted seed soil composed of clean sand and oak leaf mold. Then I poured boiling water into the soil to purify it, and sowed the seed as soon as the soil had cooled to the warmth of the hand. After pressing the seed into the surface with a small block I sprinkled thinly with sand, then placed the boxes on a shelf in front of a large sunny window. Each morning I sprinkled the seed boxes with warm water. The seed germinated in ten days almost 100 per cent.

At the present writing, the seed boxes are filled with fine, sturdy plants which will be set out into the open in a few days. I have continued using the warm water for sprinkling the boxes, but have brought the heat down to the warmth of the hands after the seed was up.

Another seed box secret was discovered last season in my garden of flowers, when I found that seedlings developed a much better root system when planted in boxes containing a larger proportion of soil than sand. Also, seed boxes four inches high allow seedlings to become several inches high before they must be transplanted.

SAVING WATER BY CULTIVATION

"How do you keep your water bill down, with such a big garden coming on?" asked the man who reads the meters a few days ago. "We keep it down with the hoe and rake," I answered, promptly. He looked puzzled; then I explained the secrets of saving moisture with a dirt mulch after irrigation. He said, "That sounds like a lot of work."

But it is not "a lot of work," because we need not do it very often. First of all, a thorough soaking with a slow running stream IN TRENCHES along the rows of plants; then a few days' wait, until the soil on top does not stick to the hoe. The length of time depends entirely upon weather conditions and the composition of the soil.

Dig up the trenches, then loosen the soil all around the plants and break it into small pieces. Then rake it thoroughly. I usually find it easier to rake back and forth several times to obtain a good fine mulch.

I have found so many flower lovers who do not understand the importance of cultivation after irrigation that I feel I must explain it again and again. After irrigation, the soil is opened up to the air, with tiny cracks, crevices and holes. As soon as the soil begins drying these grow larger, until finally all of the moisture is lost through them. Cultivation breaks them up, saving the moisture about the roots of the plants for almost an indefinite period.

Good ranchers cultivate their irrigated land just as soon as possible after irrigation, not only to save the moisture, but also to discourage thousands of weeds that come to the [illegible]." If we gardeners follow in their footsteps, we certainly shall be [illegible].

[illegible]SETTIAS ARE STARTED NOW

[illegible] so easily and well known in Southern California [illegible] we scarcely think of [illegible] replenishing our stock [illegible] excellent time of the year [illegible] new plants from cuttings [illegible] bloom before Christmas of [illegible]

[illegible]

plants a thorough wetting. This will be enough attention for two or three weeks, when they should be watered again. On the Coast it is not necessary to irrigate oftener than once in six or eight weeks after plants are established thoroughly.

BEST SITUATION FOR POINSETTIAS

The finest poinsettias are grown in sheltered locations, where there is an abundance of sunshine, but little wind. Being a native of Africa and West Indies, this plant does not thrive in the frost belts unless protected. I have seen poinsettias frosted to the ground even in the semi-tropical region of the State during the winter; however, they came up again in the spring owing to the fact the ground was not frozen.

DAHLIAS SHOULD BE PLANTED NOW

Dahlias go into the ground at this time of the year in all sections. While they grow from seed and cuttings, the bulb is the most commonly used. I have grown them from seed, cuttings and bulbs with success. I have found pleasure in all of them, though the bulbs are much less trouble than cuttings or seeds.

"Plant 'em like potatoes and treat 'em like potatoes" that's the advice of an old dahlia expert. Seeds, however, will bring the new varieties. It is as easy to raise dahlias from seed as any other annual. Plant seed in seed boxes and transplant to the open when they have formed four leaves.

A mixed package of dahlia seed will bring you more pleasure than any other prize package on the market. You can get seed from singles and doubles, though you must not expect 100 per cent germination of doubles from a package of seed from doubles. A small percentage of the seed will go back to singles, in spite of the guarantee.

NEW DAHLIAS ON THE MARKET

While all new introductions are expensive, the dahlia enthusiasts will want them any way. The Hollywood dahlia is an immense salmon pink of the cactus variety and grows into large sturdy plants with flowers averaging seven inches across. One of the newest mauve rose cactus dahlia hybrids is the big Patapsco.

The Kiwanis is a new introduction of a wonderful decorative dahlia of canary yellow. The petals are very broad and incurved with a very double center. Another new decorative dahlia is the Rotarian, which is a very large-flowered, tall grower of violet maroon. It is one of the free bloomers, also.

I realize that I have named only a few of the newest varieties, but space forbids more. One more word about the newest dahlias: When planting them, make a large wire basket or net of chicken wire and place it in the hole before planting. This will protect the bulb from gophers and moles.

INTERESTING NEW ROSES

People, events and roses! Which are the most interesting? A flower lover will listen politely to the conversation of interesting people and follow a discussion of unusual events with studied attention; but let the talk veer around to roses and the eager interest which at once comes to the surface is genuine.

California is becoming famous for its roses, therefore it is only fair that members of the ORCHARD and FARM family enjoy a share of that fame. Among the most interesting hybrid tea roses is the new sport of Ophelia, which has been properly named Madame Butterfly. It is more wonderful than its parent, growing quickly and producing larger blooms. The flowers are a very deep apricot and gold on the brightest of pink backgrounds.

The Golden Emblem is another new hybrid tea rose of distinction. As the name indicates, it is a deep, golden yellow. The outside of the petals are stained with carmine. Being a fine, upright grower, and continuous bloomer nine months of the year, the Golden Emblem deserves a place in our collection.

From Canada, a wonderful new rose of rose pink color has come. It is one of those pink roses that commands instant admiration. The flowers, which are borne on long, stiff stems are very large, the buds being fine and long. Being a heavy bloomer and a beauty, this rose, the Frank W. Dunlop, should be included in the list of those planted this season.

Among the new climbing roses we find a beautiful pink variety of vigorous growth and a heavy producer of blossoms, the Belle of Portugal. The flowers are very large and the buds long.

One of the newest and most beautiful scarlet climbers is the Paul's Scarlet Climber. The color is very bright and the petals do not fade.

The Climbing Hoosier Beauty is a twin to the wonderful crimson Beauty, which grows in bush form.

A new yellow climber, which is a sport from the well-known Cecile Bruner, will cover a pergola as quickly and attractively as the old variety. I am naming just a few of the many, many wonderful new roses, yet I find my allotted space rapidly diminishing.

One more word about roses. We of Southern California must not forget that wonderful Los Angeles rose, which does well throughout the entire West, the Etoile de France. It is a rich velvety crimson in color, does not open well in our coast regions, but grows remarkably well in the hot interior valleys.

HAVE YOU A FISH POND?

Fish ponds have become more and more popular during the last few years. A garden without a pond lacks a very essential feature unless the owner is so fortunate as to have children running about in it. However, the pond must have plants and shrubs around it, else it would be nothing less than a puddle. Shrubs, such as the red chokecherry, Labrador Tea, Buttonbush, Rosa Carlina and winterberry are successful when planted in wet, swampy soil about a large pond.

The soil should be rather peaty for these shrubs. In the shade of the shrubs you may plant the marsh marigolds, bottle gentian, yellow fringed orchid and lady slipper.

In the water we may plant common and dwarf water lilies, floating heart, water shield, pickerel weed, water arum and Washington grass. Most of these plants require the gardener to wear bathing suits and hip boots when planting them unless they are planted before filling the pond.

I shall be glad to give directions for planting a pond to anyone who applies.

THE EMPTY GARDEN.

A new home with its bare spaces calls most emphatically for a riot of annuals to cover those spaces in the shortest time. Shrubs and permanent plants grow slowly, and they must not be set too closely together, so the spaces between them must be filled with annuals and perennials for a few years.

The first year, annuals play an important part in the empty garden. Quantities must be sown now, either in the open or in seed boxes. Seed boxes started now will provide plants to set out in late April.

The hardy annuals should be sown in the open when possible. It is much easier to thin them than to transplant. However, if the seed is scarce, sow the seed in boxes and transplant them later, setting the plants far apart as space they will fill when fully grown.

Deciduous shade trees, deciduous shrubs, evergreen trees and shrubs, bedding plants, roses, palms, carnations, stocks, Shasta daisies, violets and wild flowers may be planted and sown late this year. If not already in, plant agapanthus, caladium, lilies, gladioli, narcissus and hyacinths. Dig old manure into the soil this month, where rains have been delayed. This will provide a richer soil for the summer growing season.

Thrive on Figs

(Continued From Page Two)

"My attention was directed to the use of figs as a poultry food several years ago when I let hens run under some fig trees. The chickens could hear a fig drop a long distance away and there was always a wild scramble for the fruit I noticed for every successive year that there was a definite increase in egg production when the fig season started despite the fact that I always use patented poultry foods.

"From my experiments, I believe the ground culls of dried figs could be used to great advantage by all chicken raisers throughout the year. For hens when the maximum of egg production is desired, I think the ground fig food should comprise about one-fifth of their diet. For growing chicks a larger proportion of the ground fig food could be fed.

"At present market prices the culls of figs are worth at least $50 a ton as a poultry food. The culls and the other near waste products of figs usually sell for from $10 to $20 a ton. It looks to me as if the fig grower who hauls his fig culls away at the low price is like the Middle West farmer who is hauling his farm away by selling his corn at 50 cents a bushel when if he fed it to hogs it would be worth a dollar and a half a bushel. I figure that the fig grower who raises poultry would get 10 cents a pound for his fig culls when they are transformed into eggs."

Utility

The all around usefulness of "Caterpillar" Tractors is a notable feature. They are compact, short-turning, easily handled, powerful, always dependable. They can be worked over any surface, regardless of ground or weather conditions. "Caterpillar" models range from 15 to 50 drawbar horsepower—an economical size for each need. Write for catalog.

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STOCKTON, CALIF. PEORIA, ILL.

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Mineralized Water Routs Chicken Lice

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A recent discovery promises to revolutionize all the commonly accepted methods for keeping poultry free from lice and mites. This wonderful product keeps the poultry always lice-free without the poultry raiser doing any work. It is the simplest, easiest, surest and best method ever discovered.

Lice Tabs, which is the name of this remarkable lice remedy, is dropped in the chickens' drinking water. Taken into the system of the bird, it comes out through the oil glands, and every louse or mite leaves the body. It is guaranteed to help the hatchability of the eggs, and cannot injure the flavor of the eggs or meat; is harmless to chicks and does not affect the plumage. A few days' treatment at the start and then a little added to the drinking water each month is all that is necessary.

Send No Money—just your name and address to Lice Tab Laboratories, Dept. 14, 845 S. Wabash Ave., Chicago, Ill. A card will do. So confident is the Laboratory that Lice Tabs will get rid of every louse or mite that they will send you two large double strength $1.00 packages for the price of one. When they arrive, pay postman only $1.00 and postage. Sell one to your neighbor and get yours free. If you are not absolutely satisfied after 30 days' trial, your money will be refunded. Write today before this remarkable trial offer is withdrawn.

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Will work as slow as 80 feet per minute. Does light plowing, prepares seed beds and seeds and cultivates 3 rows at one time. Works between wide row crops. Ideal for small fruits and nursery work, has Planet Jr. wheel hoe and light horse tools. Mows lawns. Does stationary power work and hauls light loads. Automatic steering device—dust-proof working parts. 4-h.p. 4-cycle gasoline engine. Bosch magneto. Uses many parts used on well-known low-priced auto. *One year guarantee.* Write for literature and prices.

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$12.50 buys guarantee option on 10,000 bushels of wheat or corn. *No Further Risk.* A movement of 5c from option price gives you an opportunity to take $500; 4c, $400; 3c, $300, etc. WRITE TODAY FOR PARTICULARS and FREE MARKET LETTER.

Investors Daily Guide, S. W. Branch, Dept. M-33
1016 Baltimore Ave., Kansas City, Mo.

When answering advertisements please mention this paper.

Is Farmer Justified in Limiting Production?

Continued From Page Three

Mr Gruhlke tells us that farms presumably California farms, are being abandoned, not by inefficient, but by "ambitious" operators.

We may not grasp the full meaning of "ambitious operator," but we may make a pretty good guess that unless said "operator" has had the misfortune to be born on that wholly unproductive farm, he possesses at least an average amount of inefficiency or he would not have wasted time on it in the first place.

One instance may suffice to support this point, and possibly tie it to the other a bit by that hackneyed "two blades of grass." The writer was enabled recently to observe one of these "ambitious operators." Ambitious was right! No lack of pep and "carry on" there. He was full to the eyes with theories. Already he had planted a large part of his 20 acres to young black walnuts; to be laboriously tended and nursed against the time they should be most carefully grafted.

OPPORTUNITY OVERLOOKED

All this was in the face of certain failure unless our young operator has a workable theory to change the climate of his section within the next three years. And yet—here is where that "one blade of grass" comes in—had he used his eyes a little he might have established himself in the humble way his cheap land justified.

All about, where a portion of the soil had been left intact, wild blackberries and strawberries grew thick. In the garden of his neighbor (another ambitious one away on a summer vacation) a small strawberry bed blossomed and bore abundantly of very creditable fruit under a burning August sun.

Across the road on an old-time claim site—so old that nothing remained of the buildings but a ruined log barn in which reposed the crumbling remains of an ox-cart—was a tangle of old-time Lawton blackberries, luscious fruit. Right there one consumer "took care of the middleman" with entire satisfaction to both parties!

And this in the face of the fact that within less than an hour's truck drive on the longest highway in the State was a town of 2000 people being supplied with small fruit from the city market at necessarily higher than city prices. When asked why he did not do something along this line, this ambitious farmer pointed out the "lack of pickers" as an excuse. Caesar was ambitious!

"Stop Speculation"

W. F. BURGENER

Norwalk, Calif.

THE farmers are now producing more foodstuffs than can be profitably disposed of. In other words the supply is greater than the demand.

Yet soup houses are increasing in numbers in the great cities, hundreds of thousands of people do not know where the next meal is coming from unless they beg or steal, and most of these are not only willing but anxious to work.

How would increased prices, due to curtailed production, affect the consumer who is unemployed? It must be evident, to any thinking man, that the consuming public would buy less and the farmer would sell less of his decreased production, and we would be as badly off as ever.

The fact is the farmer's prosperity, as well as the general prosperity, depends on the continuous employment of the working masses. The extortionate profiteering of the middleman is but the natural outgrowth of causes deeper and more fundamental. Remove the primary cause of monopoly and the profiteering middleman would find himself so encompassed by healthy competition that he would be compelled to be content with a reasonable profit. Competition is the life of trade (Socialistic theory to the contrary notwithstanding). Evils ascribed to competition are, in the final analysis due to the lack of competition; that is, to monopoly.

SERIOUS QUESTIONS ARISE

But, what is the cause? Why does not sufficient capital seek investment in industrial enterprises to furnish employment for all workers? Why do not the workers employ themselves at something so they can at least produce enough food for themselves?

Let us now examine the last question first and the first, last.

The workers do not employ themselves because they must have some place on which to "employ." If they seek a place that is near where their produce or service is marketable, they find the price or rent is beyond their means; if they go where price or rent is within their means, they find they are so far from the market that the first advantage is lost. So their only recourse is to crowd around the centers of employment and underbid other workers for their jobs and wages. The result is a reduction of the purchasing power of wage.

Capital does not seek investment in industrial enterprises: first, because the purchasing power of wages being reduced their market is curtailed. Since the worker can buy less, the farmer must take less for what he sells, and since capital charges more for what it does sell, in order to avoid bankruptcy, the farmer and all consumers must pay more for what they buy.

Instead of curtailing the production of either farm or factory it would seem more sensible to increase the earning opportunities of the consumers.

There are literally thousands of people in our great cities who eat little or no really wholesome food, have no clothing but what they pick from rubbish heaps, beg, steal, or buy in second-hand stores.

If everybody were enabled to buy all the wholesome food and good clothing needed, it would take the farmers years to catch up with the demand. Most of the tobacco land would have to be planted to cotton to supply the domestic demand for cottonwear, and sheep could not increase fast enough to supply enough wool for all the demands that would be made for woolen products. But you say most of these people are thriftless, shiftless and worthless. True, but what made them so? Read Robert Hunter's book, "Poverty."

LAND SPECULATION DECRIED

The second and more fundamental reason why capital does not more freely seek investment in industry is that investors can make more sure money by investing in land and raise nothing on it but the price.

Consider Los Angeles, where wealth is piled up, that is calculated in figures that mean nothing to the average man, but a vague unlimited surplus. Most of this comes from other States; yet Los Angeles County is said to produce more agricultural products than any county in America. And what is the result? Crowds of unemployed, souphouses and charity doles. The appeal of the charity hunters was never more insistent.

Nor has curtailment been neglected. In many sections of the county farm products have been curtailed to a fraction of what they once were. Almost in the center of Los Angeles are vast unused cow-pastures on which nothing is raised but weeds, prices and rents.

CITES SUBDIVISION EVIL

Only a few days ago a realtor made the statement that in the last year alone 360,000 acres were subdivided and production curtailed to that extent, and homesites provided for nearly three million families, with enough already subdivided to accommodate all comers for at least ten years, plus room enough for industrial sites to employ them.

No doubt the curtailment of production will go on at the same rate this year. Since no wealth is produced on this subdivided land the price to pay for it will have to be produced on land that is in use, and the farmer and laborer will have to take less for what they produce and pay more for what they buy.

Much that Mr. Gruhlke says in regard to high and low prices is true. There is a very large class of people who can and will buy what they desire, regardless of price. But there is a much larger class that cannot buy what they need, even when prices are low. The only curtailment we need is curtailment to the zero point of the income of unproductive speculation, primarily in land.

"Business Methods"

CHARLES J. YOUNG

Menlo Park, Calif.

I NEVER approve curtailment of production. I always look for means for bettering the market. Twenty years ago there were hardly one-tenth of the successful poultry farms in existence there are today and we are still far away from overproduction. Poultrymen, orchardists and truck growers are beginning to realize the necessity of running their farms on a business basis.

The farmer is far from using the methods business men use in the cities. The farmers speak of the "business" they are in, without the least attempt to act like business men. Many farmers think that if they write on the gate or fence or a piece of board, "Stock for Sale," they are advertising.

When I used to live in Quebec I ordered a Mulefoot hog trio from Florida, because I happened to read an advertisement in a middlewestern agricultural paper, that Mulefoot hogs are superior in some ways to others.

I wanted to try them out and because a friendly stockman sent me the trio free of charge, I sent him in exchange a trio of Ohio Improved Chester pigs, which I thought would be a good experiment for the Florida friend. We were both successful. So the newsprint travels. When I have anything for sale I advertise it, the way t... other business men do.

What is the difference, if I have t... sell livestock, fruit, grain, eggs ... butter or shoes, hats or china dishe... If I am in the farming trade or pr... fession" for a living it is a busine... and I am conducting my business as ... business should be conducted.

Advertising pays. When I have ... large number of purebred animals f... sale I cannot wait for customers ... come to my farm to buy. I advert... and I get customers from the "Anti... podes to the Eskimos." I can alw... sell more than I am able to raise.

When a man has goods to sell ... opens a store in the city and advert... in the local papers. But when ... farmer starts farming he usually ... in the easy chair by the fireside ... "cusses" the middleman. Why wait f... the middleman? The small farmer ... "retail merchant" and he should act ... one. He should peddle his own g... When I used to live on a "five ... estate" I would hitch up the old ... and take my goods to town every ... snow or rain, sunshine or blizzard ... I made enough to buy thirty acre... land. When a farmer has a large ... age he is in the wholesale busine... should conduct his business as ... wholesale merchants do in the citie...

No matter what you are manu... turing or selling automobiles or ... dairy cows or raincoats you have ... run your manufacturing plant ... merchandising place as a business ... should. When a butcher opens ... store in the city he does not have ... advertise extensively because he ... a "frontage" that is advertising ... place to the passersby but few f... are centrally enough located for t... kind of trade.

BUSINESS EDUCATION NEE...

Farmers need more education in t... business side of farming. Colleges a... Government experiment farms shou... conduct business courses for the farm... ers to teach them to market their goo... intelligently.

Every farmer can just as e... build up a clientele as the town doc... or the garage man. No agricultur... situation is worse than those con... fronted in merchandising.

No Government help is needed. Th... only thing necessary is education ... business and trade lines. People ... get away from the idea that farmi... is such an easy enterprise that any... can do it successfully. Scientific f... ing is complicated and requires exper... knowledge just as do the professio... of law and medicine. People who ... into the farming business have to ... trained for that business just as a m... is trained who is contemplating ... banking business.

The greatest advantages that farm... ing has over any other professi... trade or business are the home ... roundings, the God's own free outd... life, the health giving fresh air, ... ture's wonderful progress before yo... eyes. To see the baby chicks com... from the shell and maturing to ... beautiful fowls that bring the blue ... bons at the show of the fall ... heart with more satisfaction than ... other business success possi... bring.

But when agricultural edu... strive for economical and efficient ... duction, they should include effic... marketing. Arbitrary curtailment ... some of the larger crops may be f... ible, but I do not see the necessity ... it if the market can be organized. ... licity campaigns, advertising and ... individual business ability are ... more than co-operative societies ... curealls to improve the agricult... situation.

Producers' Influenc...

THOUSANDS of little workers in t... form of "cuts" like the accompan... ing samples, are ...

... "virgin ... idea ... the country ... the result ... co-operative ... sheep ... Many pr... cers and ... ers use the slogan on their lett... and printed matter, while all lett... the Pacific Co-operative Wool Growers carry the message.

Now the mohair producers are using a similar slogan, "Demand mohair clothing," with a view to ... ing the use of their product by ... facturers. It is hoped to stim... manufacturing of heavy weight ... as light weight mohair garments.

Editor Gage of the ... (Portland) has done much to f... idea.

Building Big Berry Business in Orange County

Sells 150,000 Baskets of Berries at the Ranch and by Mail to Distant Dealers and Consumers

By O. H. BARNHILL

ALTER KNOTT took no stock in the oft-repeated assertion that the Japs had the berry business so "tied up" it was useless for a white man to try to break into the game. With the assistance of his partner, James L. Preston, he set out eight acres of berry plants years ago near Buena Park (Orange County).

Knowing the kind of soil and climate in that section, the reader will be surprised to learn that the berry grew rapidly and bore abundantly. But how about marketing the fruit? Is it not true that Oriental growers have had an association which practically controls both prices and marketing methods?

"Marketing our crop never worried us for a minute," declares Knott. "Preston had grown a few acres of berries on the Glendora ranch and had no difficulty in disposing of them at profitable prices, shipping most of them to distant dealers. We simply continued the method of disposing of surplus.

"Our packing house is located right on the highway and during the picking season we sell an average of $100 worth of berries per day to passersby. Buyers from nearby cities send trucks to the ranch and take away large quantities of berries, paying cash. All fruit is sold outright—we never ship on consignment."

The berry business paid so well that plants were set out each succeeding year. Last year 32 acres was in bearing and this spring five acres more were planted.

Fifteen acres is in Advance blackberries, which average 6000 14-ounce crates per acre. This variety has been grown by Preston for 20 years and his selection has been improved until Buena Park growers consider it the most profitable berry.

The great advantage of the Advance is its earliness, the crop ripening three weeks ahead of the Gardena dewberry, its closest competitor and the most popular berry of its kind in this part of the country. The Advance begins to ripen anywhere from April 12 to May 1, the first berries last year being gathered April 16 and selling for $9 per 30-quart case.

EARLY BERRIES PROFITABLE

The Advance ripens slowly, needing to be picked only once every six days, as compared to every three days for the dewberry. It does not yield as well as the latter, but its earliness is considered as far outweighing this disadvantage. The Advance seems to be a cross between the dewberry and everbearing blackberry.

Three acres of Gardenas are grown, one of which yielded 15,000 baskets. Two acres are planted to Klondike, Progressive, Carolina and Everbearing strawberries. This fruit brings $3 per case.

Some loganberries were grown. They sell well, half-pound baskets bringing 10 cents. The fruit does not hold up well in shipping, however, and the vines are short-lived. Old timers will recall the loganberry "craze" of 20 years ago, when the business was greatly overdone.

Cuthbert red raspberries and Cumberland blackcaps also are grown. The latter sold at $4 per case.

BLACKBERRIES SHIP WELL

Blackberries are shipped without refrigeration as far as Denver. The past season shipments were made to San Diego, Phoenix, Tucson and Albuquerque. Prices average 13 cents a basket.

Most of the berry crop is picked by Mexicans. "Japs make better berry pickers," admits Knott, "but we can't hire them. Children are not satisfactory workers in the berry field. Women pack our berries, which are handled just as little as possible. In order to save time and labor the fruit is brought from field to packing shed by means of a wire cable arrangement."

A pumping plant supplies water for irrigating the berry plantations every week during the crop season and once a month in the winter time. Most of the vines are remarkably healthy and free from disease, but in order to keep the raspberry vines free from anthracnose they are sprayed three times during the winter with Bordeaux.

Chicken manure, which costs 12 cents a cubic foot at the yards, is used for feeding the soil. In January a carload of chemical fertilizer was applied to the ground. It contained 4 per cent nitrogen, 10 per cent phosphoric acid, 1 per cent Chilean nitrate, 6 per cent potash and 3 per cent organic matter—blood tankage and fish meal.

"Nitrogen makes large berries," explains Knott, "while the other ingredients impart quality and firmness. We prefer a fertilizer that is not used up quickly; one whose good effects extend over a considerable period."

The entire crop from 32 acres of berries amounted to 150,000 baskets. Enough Advance plants were grown to plant 100 acres. This variety propagates by tips, the same as loganberries, dewberries and black cap raspberries.

Knott's agricultural experience began on a homestead, where he managed to eke out an existence for four years, then quit—broke—deciding that what one gets for nothing usually is worth a little less than that amount.

MONEY IN VEGETABLES

Three years were then put in raising vegetables in San Luis Obispo County, during which time the area was increased from seven to forty acres. Most of the crop was sold locally to stock and grain farmers. One year a crop of onions yielded 300 sacks per acre. Eight hundred sacks were shipped to outside markets.

Having in three years of market gardening saved up $2000, Knott next worked for Preston until he had learned the berry business, then formed a partnership with the latter and began developing the Buena Park plantation. The enterprise has proved profitable and it is to be extended further.

"Eight or ten years ago berries were very cheap," relates Knott. "Strawberries sold for 90 cents a case and many growers went out of the business. The Japs organized four or five years ago and prices have been very good ever since. Since Orientals have been prohibited from either owning or renting land, the production of berries is bound to decrease, resulting in higher prices."

Walter Knott and samples of berries which he and his partner, James L. Preston, grow in Orange County. In the past three years they have built up a 37-acre berry plantation, which is proving a big money maker. Since it no longer is lawful for Orientals to grow berries in California, the business is expected to become more profitable for Americans.

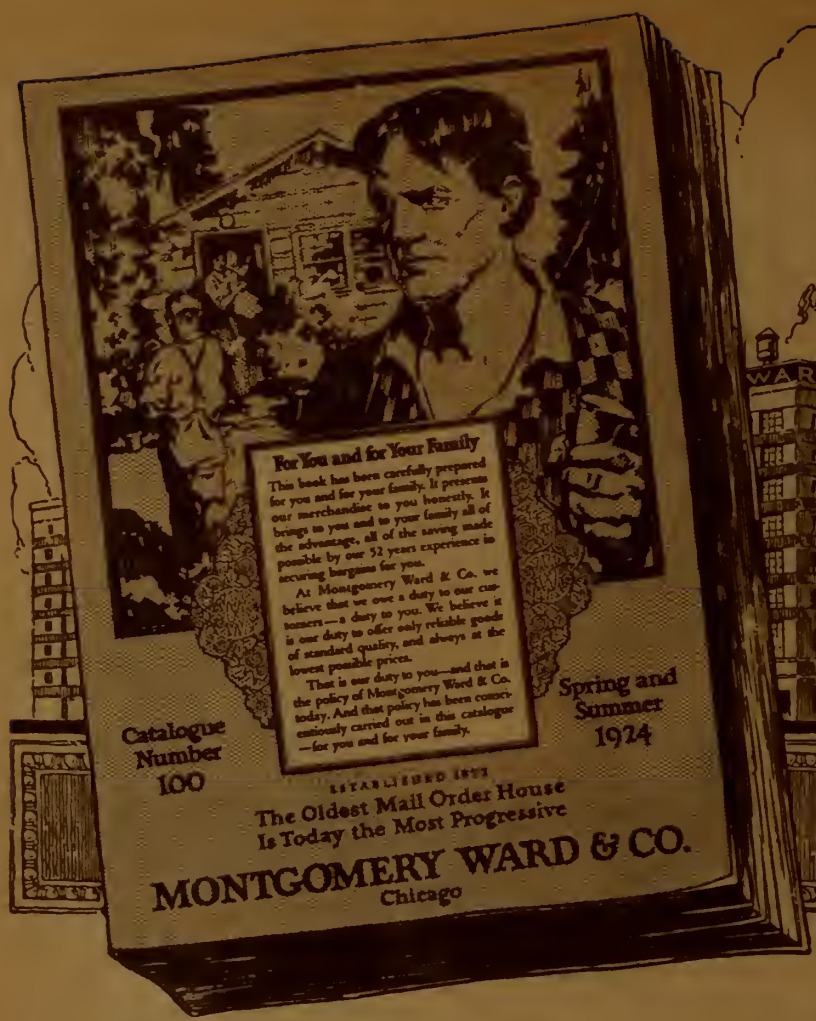
WEATHER AFFECTS POULTRY

The effect of wind and frost during the past winter was particularly noticeable in Southern California poultry districts, according to M. A. Schofield of the "P. C. A." Damage to green feed crops resulted in many outbreaks of nutritional disease, attributed to lack of vitamines in the diet.

Baby tractor in action on the Longview Poultry Ranch near Chatsworth Park (Los Angeles County). The Long brothers say this implement has proved a great labor saver.

[illegible] mulching a Hawaiian pineapple plantation. A quarter of [illegible] dollars' worth of paper is used annually for this purpose. [illegible] on either side throw dirt on the paper, which serves to [illegible] it in place. The plants are put into the ground through slits [illegible] Paper mulching is being tested by berry and vegetable growers in California and Florida. It is said to be a very [illegible] method of conserving moisture and preventing weed growth.

(Courtesy International Harvester Co.)



Our Policy

As we serve—so shall we succeed

This business is founded upon the solid rock of Service to our Customers.

As we are of service individually to you, so shall we win and keep your patronage.

As part of our service to you we select for you and sell only goods that will give you satisfaction—only goods that will stand your inspection and use.

As part of our service to you we always offer you a saving. Fifty million dollars' worth of goods have been manufactured and bought for cash to make possible the low prices this book offers.

Twenty-four hour service in filling your orders is part of our work for you. Most of our orders are actually shipped within twenty-four hours, nearly all within forty-eight hours.

Our platform is one of Service. To be of real service to you is the basis upon which we solicit your patronage.

That for fifty-one years we have been of service, that today we are offering Service and a Saving and Satisfaction to over five million customers is the basis of our success.

As we serve—so shall we succeed.

What Can We Do For You?

A Personal Message from the President of MONTGOMERY WARD & CO.

As you turn the pages of this new Spring and Summer Catalogue there is just one thought uppermost in your mind:

"What is there of interest in this book for me?

How much saving is there for me?

What can Montgomery Ward & Co. do for me?"

In imagination I look into the homes of over five million customers into which this book goes, and in each I seem to hear these same questions asked.

And as I sit here in my office and look around at over one hundred acres of floor space, filled with new merchandise, I see the answer so plainly, the many advantages, the great saving, that I wish there might be some way of bringing you more closely together—you and Montgomery Ward & Co.—so that you might learn for yourself the answers to your questions.

If I could draw up a chair with you there at your own living room table and turn with you the pages of this Catalogue, I would tell you the most interesting business story you have ever heard.

It would be a story of how thousands of our bargains are secured, how our low prices are made. It would be a romance of ready cash and the tremendous buying power your patronage gives us. And of travel—travel through every part of this land and in Europe, searching for good merchandise at the lowest possible prices.

Do you know how our goods are bought—how our bargains are found? Let me give you an example: Here is a manufacturer who has a reputation for making the best goods, who lacks capital, who lacks business, so that his plant operates on half-time part of the year.

But he knows how to make good goods. We furnish the needed extra capital, we give him orders that make the wheels turn all day and keep his employees busy all the year. His own earnings are increased and his cost of manufacture cut far below anything he has ever known. And this saving goes to those who buy goods at Ward's—to our customers. What can we do for you?

You want to buy goods at a saving. You want to buy goods that will give you complete satisfaction. You want prompt service. You want your orders filled promptly, and your letters answered promptly—and you want your patronage appreciated.

At Montgomery Ward & Co. you get all these things. These are the advantages that are waiting here for you.

A saving—yes, we try always to offer you a saving, but always a saving on goods of Ward Quality. *I cannot lay too much stress on "Quality." We do not sell "cheap" goods.* It is our policy to offer you only goods that will stand up, that will give service, that will do exactly what you want them to do.

It is easy to sell at seemingly low prices. All you need do is to buy *low-priced goods*. Cut something out of the quality, out of the service, and you can always make a low price. *At Ward's we never sacrifice quality to make a low price.*

And, for fifty-one years this has been the policy of Montgomery Ward & Co. For fifty-one years in every dealing with every customer we have tried to follow a "deal as you would be dealt by" policy

Millions of people will buy from this Catalogue—at a saving. The same saving, the same guarantee of satisfaction exists for you. We solicit your patronage. We will deal with you as you would be dealt by. And your orders and letters will always be appreciated at Montgomery Ward & Co.

Theodore F. Merseles
President

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We have perfected our service for you. After much study and testing new systems and employing experts we have perfected a system that makes certain your orders will be shipped promptly.

Our records prove that during the past year most of our orders were shipped in 24 hours—nearly all of our orders within 48 hours.

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ORCHARD and FARM

APRIL 13, 1924

Marin Making Progress Towards Dairy Goals

Peninsula Farmers Get Results

WHEN, a few years ago, M. B. Boissevain, Marin County farm adviser, arrived at the field of his future labors and looked over the situation, he decided he could accomplish the most good by making himself a "milk missionary." Turning from the old testament of obsolete methods, the extension worker found his texts in the gospel of up-to-date dairying—Purebred Sires, Testing, More Silos and Range Rejuvenation. Dairymen in other districts will find encouragement in this story of accomplishment.—*The Editor.*

By O. H. BARNHILL

Illustrations courtesy M. B. Boissevain, Marin County Agricultural Agent

WHEN a new farm adviser entered Marin County, not so very long ago, he found dairying the chief agricultural industry of the North Peninsula country, but it was obvious that the producers needed help to place their business upon a more profitable basis.

"The goals which my able Farm Bureau assistants and I set before us were pretty pretentious, and necessitated a comprehensive program," admitted Boissevain. "After three years of continuous effort we feel, however, that substantial results have been accomplished. By the use of advanced methods now being practiced in this area, Marin dairymen can work out their financial salvation in a very satisfactory manner."

The newcomer was astonished to find so few silos in use, since silage is generally considered the corner stone of the dairy ration.

"Of course silage is needed only part of the year," explains this extension specialist, "but during a good share of each 12 months this kind of feed is almost indispensable. In Colorado, my former home, we needed silage to carry our cows through the cold weather, when green feed was unavailable. Here in Marin County there is green grass all winter, but a dry spell every summer, when silage is needed to bridge over the gap between pasture periods. Furthermore, silage can be fed with advantage during other seasons, when grass does not yield sufficient succulent feed."

'But we can't grow silage here,' objected the dairymen. "We've tried it and know what we're talking about."

Boissevain was not from Missouri, but he asked to be shown, just the same. He learned that an attempt had been made to grow Indian corn, which failed to mature sufficiently to make good silage being so [illegible] tery, a m[illegible] the cows did not [illegible]

By experimenting with fifteen new varieties of corn one was found—Golden Glow — which matured sufficiently, even in the Coast districts, to make first-class silage. It yields ten tons per acre and a milch cow will eat thirty pounds a day, in addition to hay and grain. A cow can make good use of two or three tons of silage a year.

In the Eastern part of the county an attempt had been made to grow vetch, to use in connection with [illegible] for silage purposes, but without success. Inoculating the soil with nitrogen-gathering bacteria didn't seem to do much good. Experiments showed, however, that where vetch was grown on the same land it yielded better each year, making a very heavy crop by the third year, as a rule.

Fall sown vetch and barley [illegible] planted together, yield [illegible] in some cases up to [illegible] per acre of first-class silage material. Common [illegible] is used and so popular has [illegible] become in Marin and [illegible] Counties that a [illegible] sold three times as [illegible] past season as the previous year.

Where the season is [illegible] enough, or a little irrigation water available, a crop of corn sometimes follows the fall-sown vetch crop the same year. Corn is the principal hay crop.

Pea vines, from which the peas have been removed for canning, are used for silage in the vicinity of Petaluma, where the California Packing Corporation has been growing large acreages of garden peas for the Santa Rosa cannery. The yield is from four to eight tons of vines per acre and the price $4.50 per ton. One dairyman who was feeding pea vines and getting forty cows off with a day, said the production cut to thirty-five cows when he began feeding silage.

Turn to Constituents, on Page [illegible]

Above is shown Prof. W. M. Regan giving a cow-judging demonstration at the Dairymen's Picnic at Point Reyes Station. This event preceded the California Dairy Council meeting attended by more than 600 persons.

Above—C. C. Goodale, cow tester in the Marin-Sonoma unit. Marin County has three associations, testing more than 3200 cows this year. Below—Cows on typical rolling pasture lands near San Rafael.

Above—Farm Adviser Boissevain standing in a field of oats and vetch, grown on land formerly regarded as practically worthless.

Right—Filling the first silo erected by a Portuguese dairyman on the east side of Marin County. It is on the farm of A. F. Silveira, and is being filled with pea vines from the Marin Meadows Ranch, which supplied more than 1000 tons last year. In the past three years the number of silos in Marin County has increased 500 per cent.

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY

APRIL 13, 1924

Here Are Winning Letters in the Prize Contest

"A Look Into Agricultural Future," Subject of Interesting Communications From Subscribers—Checks Mailed to Successful Contributors

"Three Essentials"

By JOHN B. WARE

Awarded First Prize of $15

WE HAVE erected monuments to the heroes of our wars; we have built statues of the leaders of our Nation. We have done these things with a feeling of pride to hand them down to succeeding generations, to show our loyalty and respect for our country. These things reflect the spiritual feeling of a people and are valuable to preserve unity for the principles of government.

But what are we handing down to the future generations from the natural resources of our State? It is from the soil we all live, and until very recent years we have paid little attention to the most vital part of our existence.

Old homesteads have been left to the children with the fertility sapped out and no provision ever attempted to restore what had been taken out in the many years of cropping. Large timber tracts have been slaughtered without any thought of the future. Now we are feeling the results of the indifference and lack of scientific knowledge of our forefathers, and their unwillingness to provide for the rising generation.

The same conditions exist today, with little improvement in the right direction to protect the future of our State. Conservation of our natural resources is the paramount initial step that will stand as the greatest factor in the welfare of future generations.

Water is king in California's agricultural development. The sources of supply of our great watersheds, if not developed now, should be withdrawn from private exploitation and selfish gain. We may not need them now, but the time will come when these will be the biggest factor in our development. By taking the lead in water conservation, the Farm Bureau can leave a monument that will stand through the ages.

Range conservation is another important problem. More new grasses should be tried and planted in our mountainous sections to provide feed for stock. The valley land in time will be too valuable for the stock-raising industry.

Another thing—we have many valleys that are swept by strong winds each year. The Farm Bureau and agricultural educators should encourage planting suitable trees in rows in direct line across these valleys as close together as necessary. This not only would increase production but would make them a more comfortable place to live as well.

More highways should be built from our valleys to the seashore, giving the people of the interior a good, short road to enjoy the benefits of our beautiful beaches, and thus helping to conserve that priceless asset, human health and contentment.

In no other way can agriculture be made more attractive and permanent than by looking well into social conditions. When we build good roads that lead to the places of recreation we not only do the present population a great good, but also leave a permanent fixture that will be useful to those who come afterwards. So much for conservation of resources, a topic capable of much more elaboration.

The second great need is for more co-operation on the part of all our agriculturists. This will benefit the present generation, as well as raising the standards of the future. We are working too much as individuals. What I mean by this is: The man who is in the dairy business should be just as interested in the problems of his neighbor, who is in the fruit and poultry business, as in those affecting his own line of production. This would lead to the third great essential—improvement of quality in farm products. Closer co-operation will result in constant improvement in all lines, thus building and upholding a reputation for Californian products that we shall be proud to hand down to the future generations.

Any one who, for possible temporary gain, puts inferior fruit on the market, is too indifferent to the future of our State.

We cannot raise the standard of quality too high. We are coming into competition each year with different States and countries, and it is the high grade product now that will protect our markets of the future. It is not so much what we grow, as how well we grow it that is reflected in present profit and future greatness.

Conservation of our natural resources; co-operation by all; high standards for our products—With these three essentials always in mind, our future is safe.

Contest Prize Winners Announced

RECENTLY ORCHARD and FARM announced a contest for readers, with cash awards for letters on the subject, "A LOOK INTO OUR AGRICULTURAL FUTURE." So many interesting communications were received, the process of elimination was indeed difficult, but at length the following were adjudged winners of the three cash awards:

FIRST PRIZE, $15, JOHN B. WARE, OCEANO, CALIF.
Second Prize, $10 - - A. G. Rinn, Watsonville, Calif.
Third Prize, $5 - - A. C. Gehringer, Concord, Calif.

The Editor wishes to express his thanks to all who took part in the contest, including those who were not so fortunate as to be "in the money." The prize letters are published herewith.

"Education Needed"

By A. G. RINN

Awarded Second Prize, $10

BRAINS as well as soils need cultivation. If California is to have a great agricultural future it will be because her rural intelligence has been highly developed.

You can argue the question pro and con; you can say that power development, irrigation, drainage, diversification, cover crops, better marketing, lower freight rates, immigration, emigration, co-operation—any or all of these will turn the trick, but when everything is said and done, the garden variety of intelligence is the only thing that will solve farm problems now or in future.

A scholar once said, "Give me an educated man and I'll make anything out of him." That statement is almost as true in the today of advanced education as it was when the saying was uttered. But instead, for rural California the cry should be, "Give me agriculturally educated men and I will make a great agricultural commonwealth," for merely to be educated is not enough—we must be *especially* educated. A man educated to be a doctor usually makes a poor farmer.

It is said that co-operation in Denmark is a product of the schools; it is almost inconceivable that it could be anything else. Men will not all do a thing in unison unless there is training. In these democratic times we must all think alike, or at least aright, before advantageous action for all will result.

And so I think the future of California Agriculture lies first in education and incidentally in co-operation—education first, because without it co-operation is impossible, and co-operation because it is absolutely essential for the type of agriculture to which our State is suited and the type of agriculture we are developing.

For example: Is it reasonable to think that we can grow nearly all the almonds produced in the United States and make an economic success of it unless the producer controls the distribution and *(Continued on Page 10)*

Yes, It Pays to Graft—Horticulturally Speaking, of Course

By GEORGE P. WELDON

Contributing Editor of ORCHARD and FARM. Pomologist, Chaffey Junior College of Agriculture.

THE novelty of having several varieties of a certain kind of fruit growing on the same tree appeals to everyone and the work of grafting in order that a tree may produce more than one variety does not involve any wizardry, for any one who will follow carefully the few simple instructions given later in this article can get satisfactory results with a little practice.

[PRO]FESSOR WELDON

Not only in the case of fruit trees is grafting of interest and importance, but also in the case of rose bushes and other woody plants. A number of different varieties of rose may be grafted into one bush if one desires to have a mixture of colors, and the operation will be found intensely interesting.

It often happens that the commercial fruit grower, or perhaps someone who has just a few trees growing in the back yard, has a certain tree that does not bear, or one that bears poorly, or one that bears fruit that is of little value. In any one of these cases it is possible to graft the tree over to some other variety that will give satisfactory production of [illegible] fruit.

WHEN GRAFTING PAYS

It is not always advisable, however, to attempt the grafting over to a new variety, [illegible] failure to secure [illegible] results [illegible] from the attempt [illegible] a tree that is not a fit subject for the operation. In the first place, it is well to remember that a [illegible] tree [illegible] readily top worked [illegible]

When the tree becomes large and all the branches near the ground are correspondingly large, the bark becomes thick and more or less hard, and grafting is very apt to be difficult if not impossible.

With most kinds of trees it does not pay to attempt grafting if there are no branches under four inches in diameter to receive the cions. It is much easier to graft a branch that is from one-half to three inches in diameter than it is to graft a larger one, and the chances for success are always greater in the case of the smaller branches.

GRAFTING LARGE BRANCHES

On the other hand, it is possible and in some cases may be practical to graft branches four inches in diameter or over. One of the chief difficulties experienced in the grafting of large branches comes from the fact that the cion when it grows will not heal the bark of the stub much over an inch, or an inch and one-half on each side. Therefore, when the attempt is made to graft a four-inch stub, at least four grafts should be inserted.

If they all unite and live, there may be complete healing of the margin of the cut at the extremity of the grafted stub. If one or more should die the remaining grafts will not be sufficient to heal the stub; consequently drying out and death of the bark adjacent to the dead cions will take place. This is very serious in the case of large branches, but may not be so serious with smaller branches where rapid growth will have a tendency to cover any dead bark or wood.

As to the best age of trees for grafting, one can give only very general directions, and whether or not the work will pay necessarily will have to be determined in each individual case.

As a rule when trees have reached the age of 15 years it is too late to graft for good results, although this will depend very largely on the kind of trees.

Stone fruits are difficult to graft as they get old, on account of the hard bark, while the pome fruits, such as the apple and pear, are more easily grafted and trees much older than 15 years have been top-worked successfully. Trees of all kinds, from two to ten years of age, may be satisfactorily grafted.

Grafting of branches that are sickly or partly dead, where cions cannot be inserted in perfectly sound bark, should not be attempted.

The novice will have very little trouble in getting grafts to grow in apple trees or pears where one variety is grafted into another variety. Successful grafting of apple or pear or pear on apple cannot be accomplished, even though these fruits are closely related.

SOME UNIONS IMPRACTICAL

Apple cions will grow on pears and pear cions will grow on apples, but the union is not good, and practical results have not been attained with either combination.

Stone fruits, as the peach, apricot and almond, will not grow on the pome fruits, such as apple, pear and quince. Most of the stone fruits, however, are congenial, and peaches may be successfully grafted on apricots, plums, nectarines or almonds, likewise any of these fruits may be grafted on the peach. It is, therefore, possible to have all of these kinds of stone fruits growing on the same tree, and if one desires it is possible to have as many varieties of fruits on the same tree as there is room to graft.

Among the more difficult trees to graft may be mentioned the walnut, pecan, persimmon, avocado and chestnut, and one who is not expert should practice on other kinds of trees before attempting any of those on this list.

Failure to make grafts grow often is due to the use of a dull knife. Grafting is a fitting job and just as a carpenter cannot make properly fitted joints when he has dull tools to work with, so the grafter cannot make the cion fit accurately into the stock without a sharp knife.

The grafter, therefore, should purchase the best knife that he can find and always should carry a stone while grafting, so that he can keep his knife sharp.

PRINCIPLE OF GRAFTING

All grafting or budding operations are based on the principle that plant growth takes place from the cambium or inner bark. If, therefore, the inner bark of the graft can be matched with the inner bark of the tree or branch to be grafted, and held in place firmly for a time, union will take place and the graft will grow.

Usually one-year-old wood is used for grafting purposes, and the cion is a short stick containing two or three buds. There are various ways in which the cion and the stock in which the cion is to be inserted, can be brought together with their cambium layers in contact, and the method that is used is not so important as the care with which the work is done.

The cleft graft is one that the beginner will have little trouble in making, and to which all the stone fruits and pome fruits will respond. It consists in splitting the end of the stub where branch has been removed and inserting one or more cions cut to a wedge. A *(Continued on Page 8)*

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FRIENDLY PHILOSOPHY
By THE EDITOR

STOPPING THE LEAKS

Many a commercial business has been pulled "out of the red" and placed upon a dividend-paying basis by stopping little leaks. Efficiency of the intelligent sort will do wonders for a concern that has been managed in a hap-hazard fashion.

Now, assuming that the farm is a business institution, subject to the same problems and responsive to the same treatment as any other business, agricultural production affords similar opportunities for sound management.

As one small example, how many dairymen know just what ratio of efficiency they are securing from their cream separators? A recent survey in Maricopa County, Arizona, brought to light some interesting figures.

WHERE HIS PROFIT WENT

It seems that in addition to testing the production of cows for its members, the Maricopa County Association also checks up on separator performance.

As a result of this test it was found that one member was losing 1.2 per cent of the fat in the skim milk, or a total of 308 pounds of butterfat in one month. At current market prices it was disclosed this dairyman was "out" more than $140 a month. It did not take him long to decide in favor of replacing his old, worn-out separator with a new one!

LITTLE THINGS THAT COUNT

After all, it's the little things that count. No one can afford to despise detail, no matter how broad his plans and thoughts. One man of our acquaintance prides himself upon never bothering with minor matters, his theory being it is better to leave such things to others, and concentrate upon broader aspects of his work. He doesn't realize it, but the little leaks resulting from negligence are eating up the profits of his larger enterprises!

BALANCE MUCH TO BE DESIRED

How few of us really achieve a well-balanced character! Another man of our acquaintance has become obsessed with the idea that nothing is more important than development of his own "personality." His interpretation of the term is "to make a pleasing impression on others," with the result that he is overlooking some of the fundamentals of complete success.

Because of his attractive personality he never has any difficulty in getting a job, this is indeed fortunate, for he is so frequently in need of one!

We are acquainted with still another man who does not make quite as pleasing a first impression but who for some reason seems to be forging steadily ahead. Study of his "personality" discloses that it is made up largely of willingness to work, good judgment and perseverance.

It is surprising how many folks nowadays are so busy developing their superficial "personalities," they never get really acquainted with those who are doing the world's work!

WHAT'S NEW? Keeping Abreast of Agricultural Progress

Students Earn and Learn

MEMBERS of the horticultural class of Gridley High School (Butte County) have been getting first-hand instruction in tree pruning and incidentally earning money. The 20 boys who did this work have been paid more than $300 by owners of orchards in which they have been employed.

Citrus Thinning Demonstrations

IN Ventura County the Agricultural Extension Service in co-operation with citrus packing plants, is carrying on thinning demonstrations which are expected to prove of great value in improving the quality of the pack. From one tree in the test plot more than 700 fruits were removed and a sufficient number left, in the opinion of the experts in charge, to produce a maximum crop.

Farm Bureau Tours Popular

THE Agricultural Extension Service of Napa County recently conducted two interesting tours—one a trip by 75 poultrymen in 27 automobiles to nine plants where brooding methods were observed; the other a visit to El Dorado County to observe the Caldwell system of tying pear trees. The latter trip was made by the Horticultural Committee of the Farm Bureau.

Encourage Landscape Gardening

THE agricultural extension service of Sacramento County has done more perhaps than that of any other county in promoting landscape gardening and the beautification of home and school grounds. A large number of landscaping plans have been furnished to schools and homes, and demonstrations held in various districts. More than 50 shrubs and 10 trees made up the planting at one ranch.

Marin County Artichokes

ARTICHOKE growing is becoming an important agricultural industry in Marin County. Mrs. J. S. Hamilton of Point Reyes Station has pioneered in this work, and will have 400 acres in this crop by spring, according to Farm Bureau officials. There are 3000 acres on her property that she hopes to put into artichokes before the undertaking is completed. Mrs. Hamilton reports she has plenty of water to grow this crop successfully on the scale planned.

Paper Mulching Strawberries

PLANTED as an inter-crop in Kadota fig orchards, strawberries are being mulched with paper after the Hawaiian pineapple system near Chatsworth (Los Angeles County).

This plan is said not only to conserve moisture and protect the roots of the plants but also to encourage even ripening and discourage the formation of suckers. Earlier maturity and better quality of fruit are other advantages claimed for this mulching system.

Housewife Measures Mileage

THE distance traveled in a day by the average farm woman in doing her daily work is graphically indicated by tests recently conducted by members of the Farm Bureau in Lassen County, in co-operation with the Agricultural Extension Service. By the use of a pedometer, it was found that one woman walked more than four miles in getting one meal and caring for her poultry. By rearranging the kitchen and planning to save steps, it was possible to conserve much energy.

Turkey Course Is Offered

A NEW ten-lesson correspondence course on turkey raising has been prepared by H. M. Butterfield, supervisor of agricultural correspondence courses at the University of California, in co-operation with Professor W. E. Lloyd of the poultry husbandry division. For information, write the Agricultural Education Division, Berkeley.

According to the authors, California produces about 5 per cent of the turkeys in the United States, but could easily produce 10 per cent because of our large acreage of grazing land and abundance of green feed. Weather conditions during the growing period are particularly favorable.

Tool Inventors, Attention

ONE of the intercounty projects adopted by the California Walnut Growers' Association has to do with discovering or designing improved tools at the present time not on the market, such as tree scrapers, soil augers, wire bracing equipment and tools, and pruning tools.

To carry forward this project a committee consisting of S. W. Stanley, A. J. McFadden and E. G. Hotchkiss was appointed to work with Extension Specialist W. B. Hooper. Already a number of very promising new tools have been suggested to the committee.

Hooper at present is working with one of the prominent manufacturers of saws in designing and having made improved hand and pole saws.

H. S. Bissell of Los Angeles County recently has called the attention of the committee to a series of different sized electrically welded and galvanized rings which may prove to be very desirable in tree bracing. Several splendid tools have been shown for wire bracing work.

Milk Goats Are Wanted

THE Ojai farm center of Ventura County is conducting a campaign to introduce milk goats into the district. Two objects are the browsing of brush for fire protection, and the creating of a local supply of manure for citrus orchards. Furthermore, establishment of a new industry—that of cheese making—is expected to result from the milk goat project.

European, Japanese Graft

THAT plums of the European type can be grafted profitably upon the Japanese varieties is indicated by experiments reported to the University of California by J. E. Bergtholdt and H. Herkimer of Placer County. Three or four years ago they made grafts of the President plum on the Formosa, which was contrary to accepted practice, but proved very successful. An interesting feature of this experiment was the fact that the President ripened fruit two weeks earlier than is usually the case.

Now It's Raisin Syrup

THAT the experiments long conducted by the Sun Maid Raisin Growers in the manufacture of high-grade syrup at last have borne fruit is indicated by a recent announcement from the offices of the company. In view of the fact that the experimental work has been veiled in more or less secrecy, the disclosure that plans are being made for commercial production is taken to indicate that the many difficulties surrounding the project have been overcome. In charge of the syrup products laboratory is F. M. de Beers, widely known chemical engineer.

Harding Grass Promising

TEST plots of Harding grass are thriving in several counties of California and in practically every case this plant gives promise of unusual value. Squaw Valley in Fresno County recently made arrangements for three plots. At Booneville (Mendocino County) the grass stood the winter well and in March was knee high. In Marin County the seed was raked into native pastures in December as a means of rejuvenation, and made an excellent growth despite dry weather. This grass made the best showing in Solano County, in the low wet places on the adobe at Maine Prairie. Information concerning Harding grass may be obtained from the College of Agriculture, Berkeley.

Value of Silos Shown

A RECENT visit to dairymen in San Luis Obispo County, as reported by the Agricultural Extension Service, brought out interesting observations on the use of silos. One owner has a silo and 21 cows. His cream check for January was $240. His neighbor has 60 cows and no silo. A wire fence separates the ranches, the grade of the cows was about the same. The neighbor's cream check for January was $240. The neighbor now wants to build a silo. Many dairymen paid for the silos purchased last year from increases in cream checks during the months of December and January. There are three dairies which have 100 cows. Two of these have silos, one does not. The value of the products for two dairies with silos for December and January was $600 more than that of the dairy without the silo.

FARMER'S Viewpoint

GREASING THE SKIDS?

Recent oil events in Washington give a new meaning to the term "gosher." Even the farm bloc seems to have been soaked.

PENDING OR ENDING?

It is surprising how many agricultural bills are always "pending" in Congress. Some "pend" longer than others, but a woefully small percentage ever get beyond that stage.

AND COWS WITHOUT COWSLIPS

Subscriber writes to inquire whether geese can be raised successfully where there are no gooseberries to feed them. We believe it can be done. Horses will live without horse beans!

UNCLE SAM, PLEASE NOTE!

One problem that makes us prematurely gray is paying last year's income tax out of this year's red ink.

AND EVERYTHING BETWEEN!

We have no objection to the middleman who knows his place, but so many of them seem to want both ends as well as the middle.

HOW ABOUT A CASH CROP?

This overproduction question will adjust itself. Some of us are so busy trying to raise money we won't have time to raise anything else this year.

MIGHT TRY CONSCRIPTION!

It is estimated the energy expended annually by golfers, if used at the business end of the common garden-hoe, would displace 89,[illegible] tractors and 167,891 mules. But how to get these golf fiends to trade their knickerbockers for overalls—that's the question.

"Farmer Putnam" Comes to California

[illegible] California [illegible] was Alvin T. [illegible] the Rural Development Division, [illegible] Agricultural College Extension [illegible] for many years editor of Western Farm Life a Denver farm magazine Mr Steinel probably has a better understanding of agricultural conditions throughout his home State than any other resident of Colorado.

ALVIN T. STEINEL

This understanding has formed the basis for an entertaining feature, first appearing in Western Farm Life and now distributed to newspapers and periodicals through the Press Department of the Colorado University—"Farmer Putnam's Philosophy."

In a recent and typical article this genial humorist takes a sly dig at California boosters, which we reproduce below However, since Brother Steinel expressed himself while here as being entranced by our scenery, climate and industry, we confidently expect to find him permanently in our midst e'er long. They do say the earth trembles a little sometimes, even in Colorado, probably due to the constant stream of traffic passing through there on the way to California.—J. C. K.

FARMER PUTNAM'S PHILOSOPHY

"DOC. GLOVER sez fur me to write somethin' about foot and mouth disease which has broke out in California. I kind-a thought maybe he was jokin', but I cain't figger out how or what the joke was. Now I don't think it's necessary fur us to git excited about this here outbreak. If it was any place else but in California I wouldn't say that. Them California people is born boosters. They won't admit 'they got anything bad or disagreeable and if a calamity does show up, why they don't notice it, and, pronto, it's gone, by Heck!

"Tourists tells us about earthquakes, but none of them natives or old residenters will ever confirm it. They say the earth does tremble sometimes, but that's caused by heavy withdrawals of oil from the gushers at Long Beach, or when Hiram Johnson temporarily leaves the State.

"Technicaly speakin' they have a outbreak of foot and mouth disease, but actually they don't recognize its existence and therefore it ain't, and, consequently nobody kin ketch it. I don't know whether Doc. Glover will agree with me in this here theory about the California foot and mouth, but I would be more atraid of it if it broke out in some other State. Still, this bein' a Presidential election year we kin expect a considerable spread of this disease, especially the mouth part of it." THOS. JEFFERSON PUTNAM, Specialist in Rural Devilment.

Want Tonnage of Grapes

ALTHOUGH for table grapes the big need is improved quality, Lodi shippers say that as a matter of profit to the producers quality really is of lesser importance than tonnage.

In the old days of local wineries, quality counted first and a producer needed color, firmness and quality more than a somewhat larger yield and poorer quality.

Now it is different. The buyer wants only juice, for quality is lacking in the stuff as it is finally consumed. In general, the grower makes the most money who gets the biggest tonnage and lets quality look after itself. Juice grapes are not as firm as table grapes and need more careful handling. - T. F.

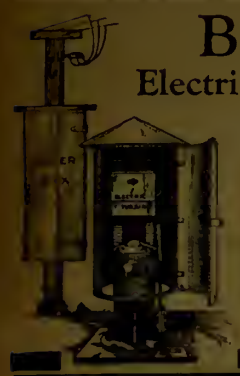
Raise, Eat More Greens

THE people of California and, in fact, the American people in general, do not eat enough green vegetables. Practically all varieties of vegetables commonly known as greens, are very easily produced, such as Swiss chard, all varieties of spinach, Marrowfat greens and seven top turnips.

It would be well if we could convince people that it is essential to good health to eat something in this line once a day In Europe, England especially, there is seldom a hot dinner prepared without green vegetables of some kind —T. C. HOLMES.

Oiling the Hen House

THE old crankcase oil from automobile motors makes a very satisfactory brown oil stain for poultry houses, according to a prominent authority It can be put on very rapidly and if two coats are applied one month apart to new work and an additional coat given every two years will keep the building in nice condition To add to the appearance of the house the face board can be painted white or cream and the curtain frame also.



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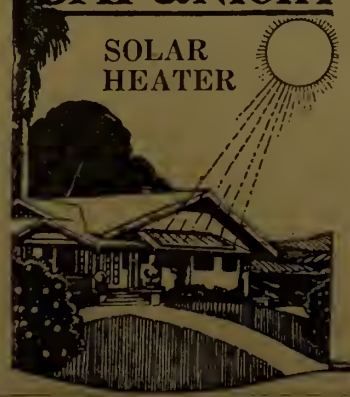

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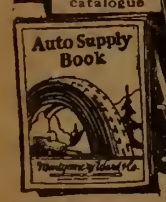

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Napa Pear Growers Tying Limbs

Practical Applications of Much Discussed Caldwell System Investigated by ORCHARD and FARM Representative

WHEN a farmer finds a good thing in cultural or marketing practice his neighbors soon find it out and follow suit. And while giving full credit to college and department experimenters, it is an undeniable fact that a large percentage of improved farming methods have originated where one naturally would expect to find them—on the farm.

The Caldwell system of training fruit trees is a case in point. This method was originated by E. J. Caldwell, Placer County orchardist, and is proving so meritorious that it is being adopted by growers in various parts of the State. As was said to have been the case with a man who made a superior mouse trap, the public is making a path to the door of this California fruit man in order to learn at first hand what he has accomplished.

Recently the Farm Bureau sent four delegates from Napa County and an equal number from El Dorado County to the Caldwell orchard to investigate the new plan of tree training. Prof. C. W. Rubel of the University of California accompanied the delegation.

The visitors were favorably impressed with the evidences of prosperity at the Caldwell Ranch, where, despite prevailing hard times, a ten-room modern residence is being built and a fine, new automobile recently was purchased. These things indicate that the Caldwell system of orchard management is proving profitable.

Last year 10-year-old pear trees in the Caldwell orchard averaged seven boxes per tree and the best fruit brought $3 a box. The main planting is of Bartletts, with Bosc and Winter Nelis for pollenizers. The latter varieties are of superior quality and often sell on Eastern markets for better prices than Bartletts. The Bosc, by the way, is considered the most profitable variety grown in the Rogue River Valley, Oregon, one of the best pear districts in the world.

Caldwell explains that he learned his system by observing one of his trees, which in 1913 had one limb bent down to a horizontal position. The next year this limb bore a heavy crop of fruit, more than any other part of the tree. Caldwell then tried tying other limbs down into a similar position, with such good results that he adopted this system of tree training.

Four main scaffold limbs are left at the end of the first year, and from that time forward all pruning is dispensed with, twine string supplanting the pruning shears. Most orchardists, however, are of the opinion that some trimming could be done with profit after the trees have attained considerable size.

During the fall or early winter, fourply cotton string is used to tie small limbs into a horizontal position. As soon as growth starts in the spring the strings are removed, the limbs retaining their bent position. The cost of this operation is greater than pruning the first two years, after which it is less.

The theory of the Caldwell system is that bending a limb checks the sap and causes the formation of fruit buds while at the same time the top is opened up to let in sunlight and give the limbs more room to grow. Without this treatment the tendency of young pear trees is to grow tops of great height and small circumference, the bearing period being postponed until the tree has assumed this undesirable shape.

An interesting point to note is that small limbs on young pear trees often are bent down by weight of fruit into a position similar to that obtained by tying. The Caldwell system then, may be considered as one which assists nature.

On the R. J. Durle ranch, Napa County, this system is being tried and with interesting results. Young Bartlett pear trees, planted in a strawberry patch, made such a rank growth the first year the limbs bent to the ground. The next year the limbs were tied up to a stake, on which a crosspiece was nailed, set beside each tree.

The third year the limbs were tied down, causing the formation of such an abundance of fruit buds that Farm Adviser H. J. Baade estimates the trees this year will bear an average of one half box each. This may seem like an impossibility, but Baade tells of 200 Caldwell-trained pear trees in a Sacramento Valley orchard which, at the age of three years, bore two boxes each. This system also is being tried in the Wyhe 4-year-old pear orchard.—O. H. B.

Pear Tree Trained by the Caldwell System of Limb Tying

OUR SUBSCRIBERS SAY—

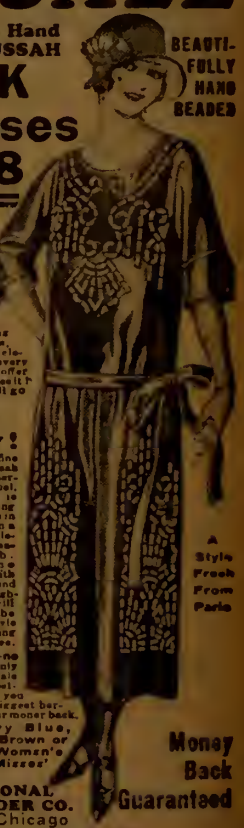
I am an ardent reader of ORCHARD and FARM. The week is not complete without it. C. C. CRAMPTON, Delhi, Cal.

A SALE

of Genuine Hand Beaded TUSSAH SILK Dresses

$3.98

BEAUTIFULLY HAND BEADED



Yes, we mean it, the price is only $3.98! Undoubtedly the biggest bargain sensation in years! A bewitchingly beautiful new style genuine Tussah Silk Dress, richly beaded and elegantly finished in every way. Most amazing offer ever made—don't miss it! Be quick! They will go fast!

Send No Money!

Richly made of fine quality genuine Tussah Silk, soft and shimmering—an ideal material. A striking feature is the elaborate beading—pretty bugle beads in rich color tones set in a most tasteful and elegant design. Self material narrow sash. Fashionable kimono length sleeves with slashed cuffs. Round neck; tailoring throughout is perfect, you will be delighted with the workmanship. The style is one-piece, becoming to all ages and figures.

HURRY! your order—no money now. Pay only on arrival special sale price $3.98 and postage. If after try-on you don't think it the biggest bargain of your life, your money back.

COLORS—Navy Blue, Tan, Natural, Brown or Black. SIZES—Women's 32 to 46 bust: Misses' 14 to 22 years.

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The Ford-A Tractor makes your Ford car or any old Ford chassis into a powerful tractor. Plows, discs, harrows and all tractor jobs. Dependable and guaranteed. More powerful than three horses. Write today.

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KINKADE GARDEN TRACTOR
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A Practical, Proven Power Cultivator for Gardeners, Suburbanites, Truckers, Florists, Nurserymen, Fruit Growers

American Farm Machine Co.
2519 Unt. Av. S. E. Minneapolis, Minn.

Gardens Keep Children Home

"Growing Things" Great Constructive Force in Molding Youthful Character—Practical Hints to Parents

MILLIONS of dollars have been spent in creating impulses for home gardens. Like amounts have been expended creating methods [illegible] the child problem. Yet how few persons think of connecting the home garden with the child problem. [illegible] public schools have taken a long [illegible] in this direction in creating the [illegible] garden. In general, however, the real key to the child problem has [illegible] lost. Vegetable growing is one [illegible] of improving the situation.

The vegetables always in demand for the home table are green onions, [illegible], spinach, carrots, early cabbage, [illegible] beets, turnips, cauliflower, [illegible] corn, squashes, tomatoes and potatoes. All of these vegetables, if well grown and temptingly offered for [illegible], will bring good prices on the market, or from the neighbors. A former high school agricultural teacher sold from a small garden space green beans which netted him [illegible] per day for at least two weeks. The amount of labor expended was slight in comparison with the amount of money received.

Do not give the boy any money unless he earns it; then teach the child how to spend the money profitably. Allow the child a home project. Help the child work the project by holding conferences with him. Offer valuable suggestions, then allow the child to sell his products for the home table, or on the market. Thus he is taught valuable lessons in commerce.

Striking successes in home gardening are obtained only by willing workers—and water! The gardener must have a vivid imagination to visualize

Animals and Vegetables Make a Happy Combination for Children

the [illegible] in view, coupled with a will to do and personal interest.

[illegible] joy comes to the worker as he inhales the fragrance that the rich [illegible] earth yields as the touch of the [illegible] tools produce responsive growth of plants when the culture [illegible]. The pride of the child in the home garden and in his home will [illegible] increased when bountiful crops of [illegible] vegetables are being harvested. It is just as imperative to [illegible] that water without personal [illegible] and work will be non-[illegible]. Work and personal interest, the key of life itself, is the price of [illegible].

The project may be the growing of [illegible] for the cut flower market, or [illegible] the bulb market. It may be the growing of rabbits, chickens or [illegible]. There are many channels into which the child's ambition can be [illegible] tactfully by the interested parent. The raising of animals would [illegible] necessary for the child to [illegible] green food for forage for his [illegible]. One very valuable result [illegible] obtained. The child will have [illegible] interest, because he knows [illegible] will be his. He knows the [illegible] football, baseball, or roller [illegible] will not be obtained unless his [illegible] are sold at a profit. He [illegible] taught there would be no [illegible] unless the products are efficiently grown and marketed.

[illegible] AND LEARNING

[illegible] commendable and natural [illegible] every normal child to want to [illegible] something for himself as [illegible] possible. The laws of California [illegible] labor to certain lines, [illegible] take the child away [illegible] streets [illegible] lessen [illegible] contact of the parent [illegible]

short spurt of enthusiasm can plant a large enough garden to require ten persons to care for it. Make the garden small and attractive. Weeds always produce mental nausea in both parent and child, so that a distaste will be created if the garden is not kept clean and tidy.

Do not think that all this can be done without effort. Help the child to plan the work and show a personal interest in helping to see it through. The child should be encouraged to understand from the beginning that he has a real job and the returns will be substantial if it is conscientiously done.

The garden plot, if small, should be forked or spaded by hand. When possible, however, better results are obtained if plowed. The soil should be completely turned over; then it should be broken up and smoothed until it is fine, deep and mellow.

The food upon which plants live and grow in the soil, consist of a number of chemicals, chief among which are nitrogen, phosphoric acid and potash. By breaking up the soil in fine pieces, not only on the surface, but also down deep, a favorable mechanical condition is produced so that the small fibrous plant roots can make their way readily in order to get the rich particles awaiting them. When the soil is mechanically right for your seeds and plants, all the little spaces in the soil will be eliminated so that it does not dry out easily.

Our home garden will be a dual purpose garden; the parent will have an opportunity to find the lost key. The personal interest which the parent has in the child, the personal interest which the child has in the project, will bring to life anew the personal interest which parent and child have lost in the home. Home will no longer be a place to hang the hat when there is no other place to go.—M. K. ZIMMER.

Now Is the Time to Make Big Profits Growing Panama Rhubarb

While Rhubarb has always been one of the most profitable of crops, there has never been a time when it offered such big returns as at present. Not only is the market price the highest it has ever been but it is possible for the grower to buy plants from the finest strain of all the celebrated Panama Rhubarb—at the lowest price that has ever prevailed. The demand for Rhubarb at present is enormous and the supply entirely inadequate. All the conditions are exactly right, therefore, for the live grower to make a "killing." Panama Rhubarb is the big-money crop. It yields enormously—10 to 20 tons per acre ordinarily—and up to 50 tons under favorable conditions. As a result of its superfine quality, it commands the highest prices in the market, netting the grower as high as $1000 per acre profit. It comes in just enough earlier than the Northern Strawberry to secure the cream of the market. Now is the time of the year to plant this great money-maker. Due to the fact that they have sold the land on which they had 30 acres growing and are now resetting their new 40-acre field and will have a surplus of plants, the lowest prices at which the plants have ever been sold are being quoted at the present time by the originators of the Panama strain, The Wagner Nurseries, Dept. O., 2491 E. Colorado St., Pasadena. Get yours while the supply lasts.

TEN YEARS' PROGRESS

for Economical Transportation

CHEVROLET

1914 SPECIFICATIONS

Horsepower, S. A. E.	21.7
Weight	2500 lbs.
Tires, 32 x 3½, fabric	(about 4000 miles)
Top	Two-man, with side supports
Gas feed	Air pressure
Windshield	Folding
Rims	Detachable
Cooling	Thermo system
Rear axle gears	Straight teeth
Oiling system	Splash
Chassis lubrication	Grease cups
Back curtain light	Celluloid
Side curtains	Stationary
Finish	Paint, air dried
Gasoline mileage	About 18
Service brake	Clutch combination
Wiring harness	Open
Insurance rating	B
Terms	Cash
Service stations	About 1000

1924 SPECIFICATIONS

Horsepower, S. A. E.	21.7
Weight	1880 lbs.
Tires, 30 x 3½, fabric (Cord tires on all closed models)	(about 8000 miles)
Top	One man
Gas feed	Suction
Windshield	Double Ventilating
Rims	Demountable
Cooling	Pump circulation
Rear axle gears	Spiral bevel
Oiling system	Pump, forced feed
Chassis lubrication	Alemite
Back curtain light	Glass
Side curtains	Open with doors
Finish	Baked enamel
Gasoline mileage	About 24
Service brake	Separate brake pedal
Wiring harness	In conduits
Insurance rating	A
Terms	As desired
Service stations	About 20,000

No. 1 Chevrolet

Present Chevrolet

Price, 1914, $1000

Price, 1924, $495

THE pronounced leadership of the automobile business in restoring the old-time purchasing power of the dollar is best illustrated in the increased quality and decreased price of a Chevrolet.

These reductions in prices have more than doubled the purchasing power of the consumer's dollar when buying a Chevrolet, although the specifications and design show marked increase in quality.

Big volume production made these economies possible. Note the ten years' record of Chevrolet sales:

Ten Years' Record of Chevrolet Sales

1914— 5,005	1919—151,019
1915— 13,500	1920—155,647
1916— 69,682	1921— 77,627
1917—125,399	1922—242,373
1918— 93,814	1923—483,432

We are the world's largest manufacturers of quality cars, having attained this leadership through offering the utmost possible per dollar value in modern quality automobiles.

Before buying any car at any price *See Chevrolet First.*

Chevrolet Motor Company, Detroit, Michigan

Division of General Motors Corporation

In Canada—Chevrolet Motor Company of Canada, Limited, Oshawa, Ontario

Prices f. o. b. Flint, Mich.

Superior Roadster	$490
Superior Touring	495
Superior Utility Coupe	640
Superior 4-Passenger Coupe	725
Superior Sedan	795
Superior Commercial Chassis	395
Superior Light Delivery	495
Utility Express Truck Chassis	550

Fisher Bodies on all Closed Models

Five United States manufacturing plants, seven assembly plants and two Canadian plants give us the largest production capacity in the world for high-grade cars and make possible our low prices. Dealers and service stations everywhere. Applications will be considered from high-grade men only, for territory not adequately covered.

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Advertisements must reach us 15 days before date of publication.

Address ORCHARD and FARM, Broadway at Eleventh, Los Angeles.

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CERTIFIED White Leghorn quality chicks from selected free range, heavy-laying, utility hens mated to double pedigree cockerels with authentic trapnest records. Our breeding flocks are inspected and accredited by the Sonoma County Farm Bureau. Safe arrival and full count of live, vigorous chicks guaranteed. Accredited "AA" grade chicks at single "A" prices. Send for catalogue and attractive spring prices. MUST HATCH INCUBATOR CO., INC., the World's Largest Electric Hatchery, 132 7th St., Petaluma, Cal.

BABY CHICKS—Only the better grade at popular prices—Hanson White Leghorns, Brown and Buff Leghorns, Reds, Barred Rocks, Anconas, Black Minorcas, Blue Andalusians, White Wyandotte and Buff Orpingtons. Order early. Free folder. McDONALD POULTRY RANCH AND HATCHERY, Route 1, Box 246, San Jose, Calif.

BETTER BABY CHICKS from high grade stock. White Leghorns from exceptional matings, including Hanson and Tancred strains. Also R. I. Reds and Barred Rocks every Tuesday. Anconas, Black Minorcas, and White Rocks in season. Write the SANTA CLARA VALLEY HATCHERY, 1049 Lincoln ave., San Jose, Calif.

THREE GRADES S. C. White Leghorn Chicks. X grade guaranteed 80% day old pullets. XX grade contains 35% pullets, guaranteed heavy layers, price $8 per hundred. C. O. D. parcel post. XXX grade, day-old broilers, $4 per hundred. C. O. D. parcel post. Established 1912. EUREKA HATCHERY, Petaluma, Calif., 628 D St., James K. Hirst, Prop.

OVER 200 EGGS A YEAR. Baby chicks from White Leghorns, all (not just one-half) sired by high-record cockerels. Our April and May prices $13 per hundred. Also R. I. Reds, Barred Rocks, $16 per hundred. Safe arrival of vigorous chicks guaranteed. Hatches Tuesdays, Wednesdays. Also pullets ready for shipment. Write for prices. The J. H. Stubbe Poultry Ranch and Hatchery, P. O. Box 67C, Palo Alto, Calif.

BUFF LEGHORN CHICKS

$16 hundred delivered. No other kind but thoroughbred Buffs from prize-winning egg layers. No pullets used. No artificial lights. Free range. Glad to send free catalog. ORINDA PARK BUFF LEGHORN HOME, Berkeley, Calif. Route 1, Box 496 E.

WHITE LEGHORN baby chix of unusual value, from especially well culled hens mated with full pedigreed males. Prices per 100: April $12.50, May and June $12. 100 per cent live, strong chix guaranteed. We are accredited by the Sonoma County Farm Bureau. THE PIONEER HATCHERY, 476 Sixth Street, Petaluma, Calif.

30c EACH. "Superior Strain" S. C. White Leghorn baby chicks delivery May and June. Big hatches and low overhead enable us to sell our high-vitality chix in accord with our motto "Highest Quality at Lowest Prices." Booklet describing our plan free on request. SUPERIOR EGG FARM, Anaheim, Calif.

PETALUMA HATCHERY. Established 1902 by L. W. Clark. Accredited by Sonoma County Farm Bureau. White Leghorn chicks every day. Guaranteed safe arrival and full count. Free circular. L. W. CLARK, 411 Main St., Petaluma, Calif.

WHY DELAY? Place your order for 1924 chicks with the White Hatchery, the hatchery with a reputation for good chicks. Safe arrival, full count guaranteed. Member of Accredited Hatcheries, Sonoma County. "A" and "AA" stock. Price right. Send for catalog. WHITE HATCHERY, Petaluma, Calif.

THE WORLD FAMED FOWL—Russian Orloff and Halo Sacredo Turkens. Booking orders now for hatching eggs. Circulars FREE. Only breeder of GENUINE stock in America. GEO. SCHAEFER, MENLO PARK, CALIFORNIA.

HIGH-GRADE CHICKS from selected Hogan-ized stock at reasonable prices. White, Brown, Buff Leghorns, Rhode Island Reds, Barred Rocks, Anconas and Black Minorcas. Union District Hatchery, Los Gatos, Calif.

ORDER your W. L. pullets and breeding cockerels from Petaluma's finest raising plant. "Stock that will not disappoint you." Write for information. L. MUNCHIN, Prop., Reliable Pullet Farm, Petaluma.

BABY CHICKS—White Leghorns. Hatches every week. Heavy-laying strain. Order now. $12 per hundred, $110 per thousand. STANFORD HATCHERY, R. F. D. No. 1, Box 42-A, Palo Alto, Calif.

BABY CHICKS, all kinds, hatching each Monday. Ducklings, turkeys, hatching eggs, rabbits, pigeons, rabbits. FANCIERS EXCHANGE, 640 S. Main St., Los Angeles.

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PULLETS RAISED TO ORDER. White Leghorns from pedigreed trapnested proven producers. All ages. M. H. GILLESPIE, Tres Pinos, Calif.

CLOVER CUTTERS, $4.50 to $45. Write for circulars. ARNOTT & CO., 114 S. Los Angeles St., Los Angeles.

BABY CHICKS—W. Leghorns, B. Rocks and Mahogany Red. CHOWCHILLA ELECTRIC HATCHERY, Chowchilla, Calif.

BOURBON TURKEYS and BUFF ORPINGTONS. Eggs, chicks. Free list. The Ferris Ranch, Grand and Reservoir, Pomona, Calif.

POULTRY

OUR 1924 CHICKS—Prices, Quality delight new and regular customers alike. Capacity 200,000. White, Brown, Buff Leghorns, Anconas, Reds, Barred, White Rocks, Minorcas, Wyandottes, Leghorns. Also all others. Orpingtons. From some of world's greatest layers; reasonable. Reduced booked ahead. Half booked for most spring weeks. They prove profitable. "Never saw such size, vigor, rapid growth, egg-yield." Write for proof. PROFITABLE POULTRY, 13 North Fair Oaks, Pasadena, Calif.

ORDER NOW—White Leghorn baby chicks from purebred stock, Ferris strain, only pedigreed cockerels of 228 to 301 egg records used. Also R. I. Reds, dark, large, heavy layers, make profitable broilers. Write for attractive prices on large or small orders. Satisfaction guaranteed. Anderson's Hatchery and Poultry Farm, Modesto, Calif.

PEERLESS WHITE WYANDOTTES. ATKINSON PEERLESS ANCONAS. I am originator and breeder of "Peerless" strain. Birds for 20 years leading prize winners at largest poultry shows. Official egg records, 242 to 281 eggs. Mated pens, cockerels, hatching eggs. Illustrated catalog free. J. W. ATKINSON, Box 10, 130 So. Willard Ave., San Jose, California.

WE'RE BOOKING CHICKS for most spring weeks from some of World's highest egg-producing Leghorns, Anconas, Reds, Rocks, Minorcas, Brahmas, Wyandottes, Andalusians, Orpingtons. Reasonable. Reduced booked ahead. Capacity 200,000. "Your chicks are stronger and beautiful, your hens heavy winter layers." Write Bred-to-Lay, 1523 Ingraham st., Los Angeles, Calif.

CERTIFIED BABY CHICKS from inspected flocks. All hens have undergone rigid inspection, mated with males having authentic trapnest records of at least 200 eggs on the side of both parents. Certified by Alameda County Poultry Breeders' Assn. Now booking orders for fall and spring delivery. Chanticleer Elec. Hatch. Inc., Hayward, Cal.

BABY CHICKS. Send for price list. SANTA CLARA POULTRY YARDS, Breeders and Hatchers, Oxnard, Calif.

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CASA DE ROSAS TURKEY RANCH, Carmel-by-the-Sea, Cal. Engage your GOLD BANK BABY TURKS now. Special reduction chicken sale, prize stock. Creation Brown Leghorns, pens, chicks, eggs. Also Toulouse geese and Carneau pigeons.

WHITE-BLOODED BRONZE Breeding Toms. Hens and eggs. A small flock ready to breed. Write for prices for each. JENKINS, Route 3, Box 115, Burbank, Calif.

A Typical Letter From an Advertiser

HALO SACREDO BREEDING FARM
R. F. D. 122K
Menlo Park, Calif.,
March 4, 1924.

ORCHARD and FARM
11th and Broadway
Los Angeles, California.

Gentlemen:

Enclosed find my check for February advertising. The results so far have been VERY satisfactory. I think the drawing power of your good paper will grow and grow and grow.

Sincerely yours,

(Signed) GEO. P. SCHAEFER.

FARM LAND FOR SALE

DO YOU WANT a home in a rich valley near Spokane on three transcontinental railroads? Where soil is good, rainfall ample, summers cool, winters moderate, the kind of stump land that pays to clear, where a farmer with $1500 can hope to succeed. Timothy and clover green eight months in the year, natural dairy country. Land cheap, 10 yearly payments at 6 per cent. HUMBIRD LUMBER CO., Box 11, Sandpoint, Idaho.

OUR BACK-TO-LAND-PLAN. We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land, deep, rich, tried soil, complete irrigation with cheap water, thorough drainage, rail, water and highway transportation. Write owners, SUTTER BASIN COMPANY, California Fruit Bldg., Sacramento, Calif.

NO COMMISSION. Sell your farm direct to buyer. We put you in touch with thousands of buyers through our chain office service. Booklets of farms for sale by owners free. OWNERS' NATIONAL LISTING BUREAU, INC., 439-40 Roberts Bldg., Los Angeles, Calif.

MUST HAVE CASH—Two biggest farm bargains in California, both improved, house, barn, garage, fenced, clear deed, full price given; 80 acres, Humboldt County, $3000; 160 acres Modoc County, $2,000, level productive land. Owner, C. E. WESTENHAVER, Riverside, Calif.

POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks Intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, California.

SIXTEEN SECTIONS pasture for sale or lease. F. P. McGINNIS, Kelton, Ariz.

FARMS WANTED

CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

FARM WANTED—Immediately from owner. Send particulars. MRS. ROBERTS, Box 53, Roodhouse, Ill.

PATENT ATTORNEYS

HAZARD & MILLER. Herman Miller, formerly eight years member examining corps U. S. Patent Office. Hazard's Book on Patents free. CENTRAL BLDG., Sixth and Main, Los Angeles, Calif.

TOBACCO FOR SALE

HOMESPUN TOBACCO—Chewing, 5 lbs. $1.75, 10 $3; smoking, 5 lbs. $1.25, 10 $2. Pipe and recipe free, pay when received. CO-OPERATIVE FARMERS, Paducah, Ky.

SITUATIONS WANTED

WANTED—Employment as ranch foreman, excellent refs., not run down. H. ROBINSON, Gen. Del., Oceanside, Calif.

FARM TRACTORS, MACHINERY

NEW and rebuilt implements, at special prices. Call and see them. ARNOTT & CO., 114 S. Los Angeles St., Los Angeles.

ALMOND HULLERS with separating devices manufactured by DUEBEL & CO., 216 First, San Francisco.

BULBS AND SEEDS

GIANT WINTER RHUBARB ROOTS. Bear in 90 days. $1.25 doz., $7.50 cwt., prepaid. FOREST WALKER, Puente, Cal.

MISCELLANEOUS

LAWNSHOWER SQUARE SPRAY SPRINKLERS distribute water uniformly over a large SQUARE AREA, reaching CORNERS of lawn or garden without flooding side walks and wasting water. Cast brass. Price $2.25, post paid. Money refunded if not satisfactory. LAWNSHOWER MFG. CO., 527 Tennessee St., Vallejo, Calif.

Sells by Mail

A SAN FRANCISCO poultry supply dealer writes concerning his advertising in "Orchard and Farm." "We have had extremely good results from the advertisement, having sold our entire lot of 5000 copies of the booklet to poultrymen and poultry supply stores. We will have more copies of our booklet printed in the early summer and will surely want to run our ad in your paper again."

It Pays to Graft

(Continued From Page Three)

modification of the graft is ... called a kerf graft, is made by ... or cutting a slit with a knife ... enough to receive a cion cut to ... wedge in the same manner as ... more skill in fitting ... grafting. This method requires ...

The bark graft is another form ... made. It consists of a cion ... flat on one side, with a sloping ... then inserted in a T shaped ... flat side against the wood ... bark.

One of the best types of graft ... one easily made with a little ... is the tongue graft. This may ... illustrated by ... giving a ... through with a sloping cut and ... the two parts again fastened ... by means of slits cut in the ... of each so that the contact will ... perfect.

Even larger branches may be ... with the tongue method, but ... case the cion would be matched ... the cut of the stock on one side ... Many other methods might be ... cussed, but enough has been said ... impress one with the fact that the ... requisite is contact of cambium ... cambium and enough ... with a little ingenuity can figure out a great ... ways to insert grafts.

One other thing of importance ... the waxing of the cions after ... Prior to waxing it is best to ... scion with common cotton twine or ... strand of prepared budding tape may be ... used. The wax then is applied ... that every place where there is ... posure from ... or cut will ... ered. Drying out of cions will ... place if the ... is allowed ... places unprotected by wax. ... is really a most important part of the ... work. The cut extremity of the ... also must be protected by a ... wax.

Having learned the theory and ... thing about methods it is ... sary for one to practice it ... become proficient in the art. ... will be many failures at first ... few successful grafts will ... one to go ahead and experiment ... be done only after ... trial.

Grower Says Cannot Lose on Black Figs

A FRUIT from which a man can take a full profit when markets are good and do better than break even when prices go to ruin is certainly a fine prospect, something like "Heads I win; tails I don't lose."

Yet one of the most experienced big ranchers of Tulare County is putting out quite a few Black Mission figs on exactly that basis. He does so because he is a stock raiser as well as a fruit grower and has had experience with figs and hogs in combination.

The idea is simply this. Before harvest a man can pretty well guess what his fruit will be worth. With normal prices, he harvests the figs. So much for that. In good years the fig grower gets the money, so it is "Heads, I win."

But how about the bad years, when "tails" come up? With nearly every other fruit the grower has to take bad times as they come and rely on average prices to protect him. This rancher keeps hogs. When prices look bad he turns the hogs in the orchard and they harvest the fruit at a profit ... big profit, but enough to pay ... taxes and running expenses. ... always some money ... hogs and ... any crop produces as much food ... acre as Black Mission figs.

There is another side of this ... matter what prices prevail, ... have good years and bad years. ... rain, frost or any kind of weather ... figs still make a fine crop ... are old enough to resist freezes ... are no crop failures and ... provided the hogs are available ... vided the orchard is fenced ... as this man's ranch is fenced.

He is getting rid of his ... and Adriatic trees, ... in the right location for the ... replants are Blacks.

Another feature of this variety ... fact that it has two crops a year ... also is a rare thing with ... disadvantage is a rather low ... fore the variety comes into bearing ...—TULARE FARMER.

Pomegranates and Hens Win

SOME kinds of trees do not get along very well with poultry. If the hens do not touch the fruit they are almost certain to pick at the leaves and strip the lower branches, even if they do not really care to eat the foliage. Pomegranates, however, appear to be immune.

A Tulare County rancher, who keeps several hundred hens, a year ago planted out a small pomegranate orchard and put a high wire fence around it and is using it as a run for the chickens. One taste of the leaves seems to be enough. In mid spring when the leaves were small and tender, not a sign of damage could be seen over the whole place. Except as their tramping around and scratching may hurt the soil, the hens might as well not have been there, as far as the trees were concerned and the value of the fertilizer produced is conceded.

The rancher gets full use of the land for pomegranates as he has it as well as a run for the fowls who get the benefit of shade from the trees. Poultrying is just a well-conducted side ... place, but while eggs were ... this spring prices ... store prices for the eggs ... come of $300 ... two months ... hens are fed valued at $150 ... per month net returns ... FARMER.

WHERE BREAD MONEY GO...

Bakers receive a larger ... price paid for a loaf of bread ... any other agent ... ufacture and distribution of ... uct, the United States Department of Agriculture has found in ... survey. The margin re... bakers over the cost of ... ranged from 4c on ... Orleans to 6c on ... 10c loaf ...

RECORD HOG AUCTION SALE

The Tulare County Farm ... cently sold at auction ... one week ... constituting a ... the five years of operation ... Department.

California White Leghorn Breeding Farm

SUPERIOR ENGLISH LEGHORNS. INTERNATIONALLY K...

THE WORLD'S BEST

Write for mating list on ... eggs ... chicks sold to April ... now for sale ...

ECKMAN & MILLIGAN, Lankershim, Cal.

Marin Making Good Progress Toward Dairy Goal

(Continued From Page Two)

" comments the farm adviser. ...ks as if there would not be ...h silos in the vicinity of Ignacio ... care of all this splendid silage ...rial, which will force the owners ... some other way to dispose of it."

...number of silos in Marin County ...uring the past three years in... from six to thirty, an encourag...e, which it is hoped will continue ...ery animal is filled with satis-...ow kraut.'

...result of better bull campaigns, ...in conjunction with Sonoma ...n, scores of purebred animals ...ken the place of unprofitable ... The latter are on the run, ... extinction, but still hold half ...erritory of Marin, a most regret... state of affairs.

...hy dairymen will continue to use ...grade heifers, sired by scrub bulls, ...cows from purebred sires yield ... more milk, in proportion to ...consumed, is a mystery to me," ...es Boissevain. "The initial cost ... purebred bull is a mere trifle, ...it is divided among all the calves ... by one animal."

...sting cows for butterfat was ...ted in Marin years ago, but dur... the past few years has been ex-...ded until now more than 3000 cows ... the richness of their product de-...mined by Babcock's scientific inven-... Some very heavy producing herds ... been built up in this manner.

...ange rejuvenation is our biggest ...nt problem," states the farm ad-... "The 200,000 acres of Marin ...tures support only one tenth ...s ...y cows. By an intelligent system ... pasture fall wing,' allowing the ... to rest during the reproductive ...iod March till July the carrying ...acity of native pastures could be in-...ed 25 to 250 per cent.

ROTATION PROFITABLE

This may seem like an extravagant ...m, but in Shasta County a stockman ...ted his pasture land so effectively ...t the yield of grass was increased ... per cent. Not only was the quantity ... much greater, but the quality ...at deal better, enabling the owner ...ll grass fat steers at a good price, an almost unheard of thing in that part of the country."

The depletion of Marin ranges has been so gradual that few persons realize what has taken place. Old timers tell of wild oats and other native grasses which originally grew almost high enough to hide a steer, a statement hard to believe at the present time, when even a ground squirrel has to do some lively scurrying around to conceal himself in a closely cropped Marin pasture.

Foxtail, a poor excuse for pasture grass, and other weeds have crowded out valuable grasses which were kept eaten off so close that they have been largely killed out, having had no chance to go to seed, by which means they might have been preserved and made to cover additional areas.

A striking illustration of the present and possible condition of Marin pastures is afforded by the growth of grass on either side of a road fence. The crop on the inside usually is poor and short, while on the outside, where the grass has been unmolested, it often grows knee or waist high.

"In addition to cutting the pasture crop shorter each year, overstocking the range is beginning to destroy the very soil itself," points out Boissevain. "Look at that bare hillside and note where the soil is beginning to break away along the paths trodden during wet weather. The turf is so thin and the grass roots so short and weak that the soil cannot be held together when wet.

EROSION GETTING SERIOUS

"The inevitable result is erosion, which, when once started, is apt to do great damage. Tiny gutters are beginning to appear on the south sides of the steeper hills, while in the 'draws' a number of deep ditches have been opened up during rainstorms. It surely is high time that Marin dairymen were awakening to the seriousness of the situation."

Some say the seasons are changing, and that the weather is not as wet as it used to be, seeking to shift the blame onto Nature for range depreciation. Government weather records show, however, that the precipitation is just as great now, taken over a term of years, as it ever was.

The average Marin dairy farm comprises 400 to 500 acres, mostly pasture land. Enough flat land usually is included to produce hay or other rough feed. Prepared grain or mill feeds constitute the other ingredient of the dairy ration. It would be more economical to buy the materials separate and mix them at home, but few care to take the trouble to do this, or feel competent to prepare a properly balanced ration.

MANY RENTED FARMS

Many dairy farms are rented to tenants who pay for a five-year lease in annual cash installments. The large rented acreage is one feature of the industry which makes it difficult to introduce improved methods, because a renter does not feel justified in building silos and working out a system of crop rotation or range rejuvenation and the average landowner is unwilling to stand his share of the expense of such procedure.

Most Marin dairymen are either Italian, Swiss or Portugese, who are, as a rule, slow to change the methods to which they and their fathers have been accustomed, although there are some conspicuous exceptions. Holsteins and Jerseys are the leading breeds, yet several fine Guernsey and Ayrshire herds are maintained. Most of the milk is shipped to San Francisco for immediate consumption, yet much cream is made into butter at local creameries.

The writer desires to close this little dairy story with a brief tribute to the natural advantages of Marin. Surely Nature has done her part, for it is a surpassingly beautiful land, blessed with a genial clime, moist and mild, yet with an abundance of bright sunshine every month in the year.

Located just north of the Golden Gate, which guards the entrance to one of the world's greatest harbors, the green, tree-decked hills of Marin mount higher and higher around Mount Tamalpais, which dominates the landscape of the North Bay country.

At this time of the year, early in March, the air is heavy with the perfume of blossoming fruit and forest trees, while the vivid green of pasture grasses blends into the darker emerald of oak and green bay forests. The cattle on a thousand hills present a scene of pastoral peace and contentment which soothes the soul of tired city dwellers, many of whom make their homes in Marin.

Irrigation Districts Show Big Growth

IN connection with the recent widespread interest in irrigation district expansion, and also the criticism of the United States Reclamation Service (which has brought the whole subject of dry land reclamation before the general public), some statistics culled from a recent report prepared by Prof. Frank Adams of the Division of Irrigation Investigations, U. S. Department of Agriculture, co-operating with the College of Agriculture, are of timely interest.

Discussing the phenomenal increase in the area of irrigated land in California and the still more remarkable increase in number of irrigation districts, Professor Adams called attention to the fact that in 1913 there were 16 irrigation districts in California, with a combined irrigated acreage of approximately 1,250,000.

The records on file at Sacramento, show that in 1923, a decade later, there were 96 irrigation districts in California covering an area exceeding 4,000,000 acres. He estimates that of the irrigation districts established in the past ten years—some 80 in number—only 50 to 55 per cent now are actually in operation.

Of these, a few represent reorganization of old districts, leaving approximately 35 new, actively operating irrigation districts organized in the past ten-year period. In other words, more than twice as many actively operating irrigation districts have been organized in the past decade than had been organized altogether in the previous history of irrigation in California.

The peak of demand for irrigation district organization, according to Professor Adams, occurred in the years 1920 and 1921, since which time there has been a rather rapid decline in the demand.

With reference to the figures relating to the activities in 1902, Professor Adams reports the expenditure of $110,000,000 in the past 22 years. During this period some 3,000,000 acres have been placed under irrigation and have been developed for crop production. On this 3,000,000 acres are now located approximately 33,000 settlers who each year produce crops estimated to be worth in the neighborhood of $50,000,000.

The magnitude of the United States Reclamation Service is readily appreciated in the light of these figures.—R. W. H.

Trees or Shrubs for Sandy Shore Soils

EXPERIMENTS made on the coast of New Zealand, Australia, France and Spain prove that with shelter trees and shrubs can be grown on any beach.

Shelter walls or "screens" usually are made of palings or rough boards; evergreen brush can be used. The object is to break the air currents which are laden with ...

Behind this screen plant a mixture of low shrubs, and trees rising gradually from Marram the famous sand-binding grass, and our native sea oats, Lupins, to Pines and Casuarinas. The idea is to obtain an effective plant-hedge. Then the paling can be removed and the entire tract developed into a forest of great beauty.

The following table shows the size of plants on the New Zealand sea coast thus sheltered by a paling in pure sand the third year. (All were about 6 inches high when planted.)

Common Name.	Height 3rd year.	Possible height
Marium Grass	2 ft 6 in.	3 ft
New Zealand Flax	3 ft.	8 ft.
Lupin	4 ft.	8 ft.
Tree Mallow	8 ft.	9 ft
Tamarisk	3 ft 9 in.	15 ft
Goat Willow	4 ft 6 in.	30 ft.
Cabbage Tree	4 ft 6 in.	40 ft.
Prickle Cone Pine .	4 ft 6 in.	50 ft.

In time the Albizzia, European Sycamores, Monterey Pines, Cypresses, Casuarinas, Golden Acacias and the Scarlet and White Eucalyptus can be established.—CHARLES H. SHINN, U. S. Forest Service.

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"Book Farmer" Produces Pullets Successfully

Inexperienced City Woman Making Remarkable Record With Poultry

By O. H. BARNHILL

[A Y]EAR ago last summer A. J. [Sc]h[a]f[e]r, manager of the [illegible] meat market at Van [N]uys (Los Angeles County), decided to move out into the [co]untry, acquire a home and —if possible—earn emancipation from salary slavedom. Like many other tired city [folk] he had a chicken dream and [hoped] to win financial independence [via the] poultry route.

[He] counted on his capable wife [to be the] main spoke in the feathered [wheel] which was to roll them out onto [the highwa]y of health, wealth and [happiness]. They were both big and [strong, ab]le to perform much manual [labor], differing in this respect from [most] town people. Of course, the [business of] carving steaks and roasts at [a meat m]arket does not leave much time [for farm] work, but a little heavy labor [mornings] and nights helps the wife [wonderf]ully in her poultry project.

[Mrs. Sc]hafer knew practically nothing [about] the chicken business except [what sh]e had read. Therefore, when [the real] dirt farmers of the Mission [[illegible]] district saw her bringing out [her tin]y chicks they freely predicted [that failu]re would attend her feathered [enter]prise. Disregarding the slighting [rema]rks about "book farmers," [she an]d her husband went to work. [[illegible]] no reason why the right kind [of theo]ry should not succeed in practice.

[[illegible]] unlike the expert fictionist, [who ke]eps his readers in suspense un[til the] last chapter, the writer will at [once te]ll how the Schafers have succeeded after being in the poultry pro[ject] 19 months. They successfully [raised] thousands of chickens and in[crease]d their laying stock until 1800 [hens] were on the job.

SPECIALIZES IN PULLETS

[The] egg income has run from $95 to [illegible] per month, net, after paying for [feed] and other supplies.

[Alt]hough they have made good [mone]y producing eggs, the Schafers [have de]cided to specialize on raising [and sell]ing pullets, having already had [consi]derable profitable experience in [that l]ine of work. They do not have [to wo]rry about a market for their [stock], since satisfied customers have [adver]tised their birds so well that or[ders] for future delivery already total [illegible].

[With] this amount of business in [sight], Schafer plans to hang up [his cleave]r and white apron in the near [fut]ure—"just as soon as the poultry [busine]ss gets too big for my wife [to ha]ndle," he explains.

[So] much for results—now for methods:

[illegible] fe[e]d, cleanli[ness], [illegible] of d[isease] and [illegible] w[ith] care [illegible] that's all [illegible] Mrs. Schafer [illegible] a good deal," [illegible] the buildings [illegible]

[illegible]

[illegible] with [illegible] turn [illegible]

mitting air above. Except on cold or windy days, the windows are taken out to admit more air.

Three new thousand-chick brooder houses, each 20x20 feet, are being built. At one end a 10x20 foot work room provides space for supplies, drinking bottle sterilizer and other things necessary in the brooding business.

The new laying house is the pride and joy of its owners. This building is 160 feet long and 20 feet wide and is divided into eight 20-foot rooms. Each room accommodates 200 hens and is connected with sliding doors, to admit the feed carrier which is to be installed.

"The beauty of these big, sunny rooms," explains Mrs. Schafer, "is that they are so roomy and well arranged that it is unnecessary to provide yards, which are hard to keep clean and sanitary."

NO POULTRY YARDS NEEDED

"You don't mean to say you keep the hens indoors all the time?"

"I certainly do," replied the poultry lady. "Did you ever see healthier, happier birds? Of course, hens will go out and scratch awhile in the morning if they have a chance, but when the weather is too hot, or too cold, or too windy—as it is most of the time—they prefer to stay indoors if they have comfortable quarters. Yards really are spreaders of disease. It is comparatively easy to keep a large, sunny room sanitary."

Keeping a hen coop clean depends largely upon how the floor and roosts are arranged. In the Schafer house there are no unsanitary dropping boards, the poles being laid over a wire-covered frame, through which the off[al] falls to a sand-covered floor. The latter is "swept" each morning with a fine-toothed rake, this being Schafer's first job when he rises at 4 o'clock in the morning and turns on the light, which is the signal for hens to rise and get to work.

The roosts are lifted out of the way by means of concrete weight, rope and pulley, the frames being set on blocks. [Desp]ite the fact that the hens remain [indoors] continually, there is no dis[agre]eable odor in [the] [laying] house. [illegible] ers of nests are fastened to each [illegible]. The nests are well occupied [during] the day and at night are closed [illegible] pl[at-]

forms in front. This keeps out broody hens and helps them to forget incubation ideas.

The upper half of the six-foot south wall is open, being covered only with wire netting. The rear wall is two feet higher, making an offset of that height at the roof comb, where there are four small windows in each section.

The mash bin is fastened to the south wall, as is the water trough. Narrow panes of glass admit light to the feeding birds, which stand upon a knee-high platform. Each flock of hens is given a three-gallon bucket of mash daily, only as much as they will clean up nicely. Forty pounds of grain is scattered over the floor each afternoon.

In the green feed "manger," located beneath the boxes containing grit, charcoal and oyster shell, lettuce, alfalfa and other succulent forage is fed. From the large lettuce fields of the San Fernando Valley, culls heads are obtained cheaply and fed whole.

It is commonly believed the amount of green feed grown is the limiting factor in the number of hens that profitably can be kept on a given area. Van Nuys poultrymen are able to figure differently, however, because they are fortunate in being situated close to extensive alfalfa fields, from which green feed may be obtained at 30 cents per hundred pounds, delivered. Chopped alfalfa costs twice as much.

KEEPING HENS HEALTHY

Insects and disease never worry the Shaffers. Heeding the old adage that "An ounce of prevention is worth a pound of cure," they put lice powder in the nest boxes and spray both floors and roosts with a patent disinfectant once a week, using a cupful of the liquid—together with three pints of kerosene—in 10 gallons of water. When the birds get the chicken pox they are [treat]ed with th[e] disinfectant, causing them quickly to recover. Dust boxes, in which lime and lice powder are sprinkled, are to be placed in each room.

A preparation of chlorine, phosphorus, calcium and other mineral salts is highly prized. This medicine is sprinkled in the mash and is the first thing given young chicks.

The eight-section hen house, accommodating 1600 birds, cost $1700. This includes $320 for a concrete floor, which is considered unnecessary, where sand is used. The plan was obtained from a book written by Dr. Prince T. Woods, editor of the American Poultry Journal. This book is the Schafers' poultry "bible," farm papers constituting their "lesson leaves."

Raising chicks is a continuous performance at the Schafers' Broadmoor Poultry Plant. Contrary to the usual practice, many September hatched chicks are brooded and brought to laying age.

"Our pullets begin laying at the age of four to four and one-half months," asserted the Broadmoor lady. "Our September chicks begin work in February and continue laying throughout the year, not stopping during the fall season of high egg prices.

Much credit for the early and heavy laying proclivities of their hens is given by the Schafers to the fact that they are from Blaquiere's Gibson strain chicks.

Pullet prices range from 85 cents for eight-weeks-old birds to $1.75 for those seven months old. It will be seen from these prices that the 7000 orders already booked mean a nice piece of money coming to the erstwhile "book farmers." They have enlarged their tiny acre ranch to three acres and are independent about selling stock, in explanation of which attitude they point to a $200-per-month record made by 836 of their hens.

The neat and orderly appearance of the new Schafer poultry home suggests the methods which are proving conspicuously successful in producing productive pullets.

By means of a rope, pulley and weight, the roost is lifted out of the way when the sand floor is raked clean each morning. The wire netting in front keeps the birds from beneath the roosts.

This fine poultry house, built from book plans, shelters 1700 hens so successfully that outside yards are unnecessary. Neighbors are copying the style of building.

Large or Small Fig Trees?

"GIVE me a small fig tree to plant every time," said a prominent grower, "because the wood will be ripened better and the tree make a better start."

Others may have the same idea, but they are half wrong. It all depends upon how the trees are grown in the nursery. If they are large because they have been forced all season, the wood will not be well-ripened, but if they made their growth early and had a long time to mature their wood, they will make the best kind of trees.

The finest trees in my fig orchard came from the biggest nursery trees planted. Often in a fig nursery, a poor cutting will not start growth until mid-summer and the wood will be both short and poorly ripened. At best it will be far inferior to a tree that started early and grew normally.

Many half truths do more harm than good.—TULARE FARMER.

FARMER BIG CHEMICAL USER

"The American farmer is the greatest user of chemicals in the world," says the U. S. Department of Agriculture. A new film, "Poison," recently released, depicts the numerous ways in which economic poisons are used by the producers of food

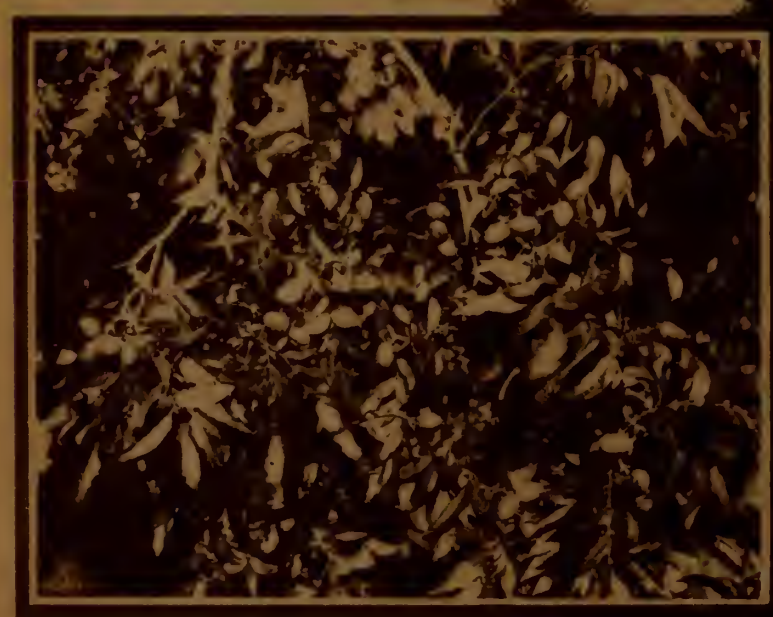
FARMING IN ARIZONA

Inspiring views of nearby mountains add interest to the work of Arizona farmers. This splendid citrus orchard is situated in the famous Salt River Valley

This flowing well in the Gila Valley is helping make the desert blossom as the rose. Water is wealth in Arizona.

Bird's-eye view of the $25,000 poultry plant of the State College of Agriculture at Tucson. Arizona egg production is increasing.

Peanuts—"goober peas," Southerners call them—thrive in Maricopa County, as do cotton, oranges and numerous other semi-tropical crops.



"Close-up" of a well-laden pecan tree in Yuma Valley, showing the possibilities of growing this nut in Arizona.

Athel tree windbreak growing at the Arizona Experiment Station. This plant is well adapted to local conditions and grows rapidly.

ORCHARD and FARM

APRIL 20, 1924

Growing Good Gold Ridge Gravenstein Apples

A Visit to Sebastopol

THE low price bug is the only insect Sebastopol apple orchardists fear, and recently it has caused some consternation. But considered over a period of years, this substantial industry is one of California's finest. How one grower saved an old orchard by tree surgery and how a farm cold storage plant was constructed are two of the interesting topics discussed in this article.—*The Editor*

By O. H. BARNHILL

AS FRESNO is noted for her Sun Maid raisins, Santa Clara for her Sun Sweet prunes and Petaluma for her White Leghorn eggs, so is Sebastopol celebrated for Gravenstein apples, of which she shipped a million fragrant boxes last year to gladden the hearts and tickle the palates of the American people.

Long before the tourist reaches this pomological paradise he is apprised of its vicinity by big red apple road signs directing him to the Gravenstein Highway, which leads through the apple districts to the beautiful Russian River country beyond.

Everybody in Sebastopol talks apples—Gravenstein apples—from the lady who reigns supreme at one of the prettiest little Chamber of Commerce buildings in the State to business men and high school students. Fortunately, the residents of this favored region early learned what their land was best fitted for and happily are putting it to its most profitable use.

Sebastopolians live a life which approximates the ideal, since it combines in large measure the advantages of both town and country existence. Their homes are close enough together for sociability and neighborly convenience and far enough apart to avoid the drawbacks of a crowded city, while they reside amidst blossoming trees and fragrant fruits, engage in clean, wholesome work, in which there are periods of leisure for vacationing in the nearby mountains or visits to the city of San Francisco, reached in two and one-half hours by boat or motor.

"But can real money be made in growing apples? Does this ideal life have a profitable practical side? Are Sebastopol fruit farmers an exception to the agricultural rule of much work and little pay?"

We're coming to that—give us time! These food producers have their financial difficulties the same as their brothers in other branches of the farming industry. They have similar ups and downs, having received $2.25 for their fruit during the period of peak prices and now being compelled to accept 75 cents.

"But," you ask, "isn't six bits a box a fair price for apples?"

"Not when production costs are as high as they are now," explains E. C. Merrit, manager of the Sebastopol Apple Growers' Union. "Thinking in terms of pre-war prices, it doesn't seem so bad, but $1 a box is the lowest price at which apples profitably can be produced at present, our growers figure. Everything the orchardist uses costs more than it used to—labor, machinery, spray dope, box shook and other supplies."

MAKING LITTLE MONEY NOW

No, inflated land values are not taken into account in this estimate. Sebastopol orchardists are willing to squeeze all possible water—or cider—out of their capital stock which may be represented by high-priced groves and figure production costs with an efficiency expert, confident of the dollar-per-box minimum being reached.

"Then how do these farmers manage to live, if they are doing business below cost?" asks the puzzled outsider.

"Oh, we're still eating three square meals a day, all right," admits Charles H. King, a prosperous Gold Ridge grower. "War-time profits placed us in a favorable position to weather the present low-price storm. There are various ways of figuring a farmer's profits," he explains.

"Actual net takes into account the going rate of interest on capital invested, depreciation of plant and equipment and a fair price for the owner's labor. During low price periods we still make money, even if we don't get much interest on our investment and work for very little. The hope of better times and higher prices keeps us in the business."

King came to Sonoma County from the Rogue River Valley, Oregon, one of the premier fruit districts of the Beaver State—16 years ago, being attracted thither by superior climate and propinquity to one of the world's greatest cities. He owns 35 acres of apples near Sebastopol and each year sells about 250 tons—10,000 boxes—of fruit. This gives a gross income of $8500, even at present low prices.

Of course production costs cut this down considerably, but there is enough left to keep the home fires burning brightly, judging by his comfortable residence and high-powered touring car, both in pretty constant use. King is one of the leading Masons of California and both he and his accomplished wife are popular with their neighbors and the lodge people of the State. They are well content with their life and work which they consider approximates the ideal.

SUCCESSFUL TREE SURGERY

There are two ways in which King's horticultural practice differs from that of most of his neighbors—the use of a large winter storage building and prolonging the life of old trees by extensive tree surgery. The latter work was done by an expert from Berkeley, who successfully treated nearly a thousand trees, at $4.50 per tree, seven years ago.

Many of the trees operated on were old Red Astrachans which had been top-grafted to Gravensteins. As a result of imperfect unions, the trunk and larger limbs of many trees had been seriously injured by decay. Snap judgment would have pronounced such trees not worth trying to save, since they were unsound and rotten at the heart.

"But the heart of a tree, unlike that of an animal, is not its most vital part," explains King, "inasmuch as the live and growing tissue, which supplies food for the fruit, is the cambium layer, located just under the bark. The heart wood of a tree serves merely as a support for this outer, active layer. If the rotten wood is replaced with some substance like concrete, and the decay checked and prevented from spreading to the cambium layer, the useful life of the tree may be prolonged indefinitely."

The concrete in the larger cavities is divided into sections, which were separated with building paper, which takes up expansion and contraction and prevents the concrete from cracking when the tree is bent by the wind. Where crotches are bolted together and where only one side of the top was left it is supported by a two-by-four, spiked into the trunk. Wires from this support extend to the main limbs, to which they are fastened by staples.

Large cuts were covered carefully with a specially prepared asphaltum paint so thoroughly was the work done that new growth is covering nearly all the wounds. Trees which were growing straight for the brush pile have been given a new lease on life and have grown tops which are as thrifty and productive as those on young trees. Only a few boxes of fruit per tree are required to repay the initial cost, even though the latter was large enough to frighten the average farmer into inactivity and subsequent loss.

The storage plant holds 5000 bushels of apples and was built to enable the grower to retain his crop of winter apples off the glutted fall market until prices improved. Not having planted late varieties of his own to fill the plant to capacity, King [illegible] fruit of his (Continued on Page 6)

This is the attractive ranch home of Charles H. King, successful apple grower. The family sedan brings city entertainment within easy reach.

Mr. King points out a fine example of surgery, which has prolonged the life of many old trees.

The cold storage plant has a capacity of 5000 bushels. The owner, at the right, is talking over the market situation with his friend, E. O. Nelson, another prominent grower.

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
APRIL 20, 1924

Sun Maid Growers Offer Fresh Grape Selling Plan

Clearing House for Shippers of California Juice and Table Grapes Expected to Result in More Effective Distribution of Crop

By O. H. BARNHILL

BECAUSE, during the past year, he had kept the raisin men upon their feet and prevented threatened disintegration of their industry, a few months ago the growers asked Ralph P. Merritt, capable and energetic Sun Maid manager, to help sell their fresh grapes. Not only are approximately one-fourth of all raisin grapes sold fresh, but many raisin growers also produce large quantities of juice and table grapes. The Muscat, principal variety of seed raisin, is used to make Muscatel wine. Most drinkers prefer colored wine, but when a little juice from very dark colored grapes is added to that from Muscats, the result is a very attractive pink beverage.

O. H. BARNHILL

The problem of selling fresh grapes therefore is a very vital one to raisin growers, especially when raisin prices are at the present low level. The largely increased demand for juice grapes which followed prohibition of alcoholic liquors resulted in such good prices that neither growers nor dealers have fully realized the necessity of concerted action in selling fresh grapes. The market for this product, however, is in a condition far from satisfactory and a strong sentiment in favor of improved methods is developing.

The packing and selling of fresh grapes is an entirely different business from handling the raisin crop, requiring different equipment and organization. Furthermore a large proportion of California's fresh grapes is grown outside the raisin district: in the Napa Valley, around Lodi and Florin and in other vineyard sections. It therefore would be impossible for the Sun Maid growers to control the California fresh grape market, even if the necessary equipment and sales machinery were added.

GROWERS LACK CAPITAL

Moreover, investigation disclosed the fact that as early as January Sun Maid members had contracted half their 1924 fresh grape crop to dealers, in order to borrow money with which to finance the season's farming operations. With [illegible] per cent of the crop tied up in this [illegible] it was considered useless to [illegible] sell the balance of the output to [illegible]ge.

[illegible] realizing the difficulties of the [illegible]tion growers still insisted that the [illegible] Maid, having—like Joan of Arc—[illegible] led them on to raisin victory, do something to help them out of their [illegible]. Merritt, with the help of [illegible] marketing experts, evolved the plan [illegible]ishing a clearing house for fresh grape shippers.

This plan was presented to all the dealers operating in the Fresno district and received their unanimous indorsement. The only point on which they were not entirely satisfied was the attitude of the Federal Government. The latter, it was feared, might throw a monkey wrench into the clearing house machine on the ground that it would operate in restraint of trade and therefore violate the Sherman Anti-Trust Law.

In order to allay any fears upon this point, Merritt went to Washington and discussed the situation with President Coolidge, Secretary Hoover and Secretary Wallace, all of whom not only heartily indorsed the proposed grape selling plan, but expressed keen personal interest in the Sun Maid Growers, which they consider one of the world's greatest co-operative marketing organizations, a leader in its line.

Lloyd Tenny, Federal marketing expert, recently was sent from Washington to California to aid in the formation and operation of a grape shippers' clearing house. Before he arrived, however, the dealers grew suspicious of each other, one group making demands to which their competitors refused to agree.

In this difficulty they appealed to the Sun Maid. But Merritt, who at present is representing this popular lady, had gone to the Orient, where he is teaching the Chinese and Japanese to eat raisins. The fresh grape marketing movement therefore is at this time in a static condition.

Merritt's plan provides for the election by grape shippers of a clearing house governing board, which shall have authority to decide to which points fruit shall be sent. Each dealer must report within 24 hours after starting a car rolling a full description of same, the type of sale and destination. The board will study these reports and analyze the market situation, in order to decide upon an equitable distribution of the product.

The main purpose of the plan is to prevent the glutting of large markets and to divert shipments to smaller cities which are capable of consuming much larger quantities of grapes than they now receive. The reason why some markets now get more fruit than they need and others not enough is because shippers are operating in the dark, as it were, without knowledge of what competitors are doing.

A dealer hesitates to send a car of fruit to—say, Little Rock, Ark., because one or more other dealers may be doing the same thing, which would result in this small market being oversupplied and lead to losses on the consignment. He therefore ships to a large city, generally considering this the safest course to pursue, although not always profitable.

LARGE MARKETS CONGESTED

As an indication of the market congestion which results from the present method of handling grape shipments, it is estimated that at one time last summer 3000 cars of this fruit were piled up on the Erie wharf, New York, leading to large losses to growers. This city, it is said, takes 40 per cent of California's grape crop.

There is, by the way, pressing need in the big Eastern cities of better terminal facilities for handling the tremendous tonnage of fresh fruit which California sends to these points each season. It is estimated that adequate trackage and storage in New York City would enable that market to handle an additional 40 cars of grapes daily.

Since the advantages of the proposed plan are obvious and unquestioned, why did dealers "kick over the traces" and refuse to co-operate? Because they are suspicious of competitors and cannot trust each other, according to one who is in close touch with the situation. Some of them are afraid they will be "double-crossed" and that representatives on the governing board of a "ring," which may be formed of favored shippers (*Continued on Page 10*)

Discoveries of Plant World Explorers Add Untold Weath

Millions of Dollars Involved in Production of New Farm Products—Date Industry an Example

By ROBERT W. HODGSON
Agricultural Extension Service, University of California

THE total annual value of crops produced from seed or plants introduced originally as "aliens" to the United States is now approximately $100,000,000!

For more than twenty five years intrepid explorers from the United States Department of Agriculture have traveled all over the world, often penetrating the most remote districts far from civilization, to collect promising trees, plants and seeds for experimental culture in this country.

HODGSON

California fruit growers and farmers in general probably are but little aware of the [illegible] and importance of this work [illegible] to [illegible] also [illegible] to [illegible] the [illegible] is [illegible]

[illegible] value of [illegible]

[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
Red amber and honey sorghum	2,000,000
Egyptian long staple cotton	20,000,000
Hairy Peruvian alfalfa	3,000,000
Kiushu short staple rice	3,000,000

As more and more land is brought under agricultural production with an ever-expanding need of food crops, the work of this important division of the Department of Agriculture is certain to be more and more appreciated. Through the efforts of its employees the best that the world affords is being brought to the American farmer.

California is particularly fortunate in receiving attention at the hands of the federal plant explorers. One of the three principal plant introduction gardens is located at Chico (Butte County) where thousands of introductions are being grown and tested under supervision. Each year plants grown at this place are distributed widely to farmers and fruit growers throughout the State for the purpose of testing their adaptation to local conditions. (Any reader wishing information about such plants should [illegible] Chico branch, but the Plant and Seed Introduction Division, U.S.D.A., Washington, D. C.—Ed.)

The list of food crops added to California agriculture is long, and includes many of great promise especially adapted to the highly intensified horticultural development of this State.

Among those of principal importance is the Washington navel orange, introduced by the department prior to the organization in 1898 of the present Division of Plant and Seed Introduction. Introduced into California as two individual trees sent to Riverside in the early 70's, the present acreage of Washington navel oranges has reached a figure approximating well over 100,000, constituting perhaps the most important commercial fruit industry in the State.

Of the subtropical fruit group, the additions to California horticulture resulting from the work of this department include the Chinese jujube, which has distinct promise for certain of the drier sections of the State, many varieties of the Japanese persimmon, which is now undergoing a decided boom; the hardy Barouni olive; a large assortment of avocado varieties, and the date.

The latter fruit affords perhaps the best illustration of the efforts of the hardy plant explorers to establish in the United States a new and promising fruit industry under extremely trying conditions.

Less than half a century ago, as a result of foreign explorations, coupled with a knowledge of conditions prevailing in the arid Southwest, and particularly in the Coachella and Imperial Valleys of California and the Salt River Valley of Arizona, the idea of establishing the date industry in the United States occurred to officials of the Department of Agriculture.

The suggestion was generally regarded as wholly ridiculous until, through the efforts of David Fairchild and W. T. Swingle, evidence was offered indicating the possibility of success. Meager financial assistance was furnished by the department and these men given an opportunity to demonstrate their faith in the introduction of a brand new horticultural industry of which but little was known.

Under trying circumstances and with results that for years gave but little promise of success, they and others later becoming interested in the project devoted their best efforts to [illegible] throughout the (*Continued on Page 8*)

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY
By THE EDITOR

CENTURY OLD WISDOM

It was just 100 years ago that William Hazlitt, the famous English essayist, penned the following interesting observation concerning agriculture:

"Some men are mere machines. They are harnessed to a profession—yoked to Fortune's wheel. They plod on and succeed. Their affairs conduct them, not they their affairs. Such a man may carry on the business of farming on the same spot and principle that his ancestors have done for many generations before him, without any extraordinary share of capacity. All that is necessary is that he should not pretend to be wiser than his neighbors.

"If he has a grain more wit or penetration than they, if his vanity gets the start of his avarice only half a neck," continues this keen analyst of human nature, "if he has ever thought or read anything on the subject, it will most probably be the ruin of him. He will turn theoretical or experimental farmer and no more need be said."

TERRIBLE EXAMPLE OF INDEPENDENT THOUGHT

Continuing his discussion of the theoretical farmer, Hazlitt cites a horrible example one Cobbett whom he describes as a sufficiently shrewd and practical man, with an eye also to the main chance. "But," laments the author, "he got some notions in his head about the one method of sowing turnips, to which he would have sacrificed not only his estate at Botley, but his native county of Hampshire itself, sooner than give up an inch of his argument."

We all know modern "Mr. Cobbetts"; perhaps such a man lives just across the road.

The accumulated knowledge of years means nothing in his life! Nor does he care a snap of the finger for the discoveries of those who have grown up in the fruit, or livestock, or poultry business as the case may be. Sufficient unto himself, he asks not advice nor will he tolerate it. He has a THEORY and, if necessary, he will strangle himself to prove it!

BUT WHAT ABOUT FARM PROGRESS?

Fortunately for agriculture such "cranks" as the one described above are in the minority. The average intelligent farmer makes use of all sources of information. While following the best practices of more experienced producers, at the same time he is on the lookout for new ideas.

But when some apparently better method is suggested, he does not immediately make over his entire business to accommodate it. Rather, he tries it out on a small scale and experiments before adopting it.

PROGRESS DOESN'T MEAN SACRIFICE

Hazlitt contends that "though the experiments and improvements of private individuals from time to time gradually go to enrich the public stock of information and reform the general practice, they are mostly the ruin of the person who makes them, because he takes a part for the whole, and lays more stress upon the single point in which he has found others in the wrong than all the rest in which they are substantially in the right."

Such misfortune need never befall the progressive man who keeps his mental equilibrium. Progress need not involve sacrifice. Independent thought should be balanced by accumulated wisdom; independent action by co-operation.

WHAT'S NEW? Keeping Abreast of Agricultural Progress

Issue Special Walnut Number

THE April issue of the Los Angeles County Farm Bureau Monthly is a special walnut number, containing the most comprehensive review of the walnut industry in this district ever issued, according to Farm Adviser Hodgson. Extra copies may be obtained by applying to the Farm Bureau, Broadway Annex, Hall of Records, Los Angeles.

Good Fruit Sells Well

MEMBERS of the California Co-operative Canneries, which operates plants at San Jose, Modesto and Visalia, received the following prices for last year's fruit crop:

Apricots, A, B and C grades, $55, $42 and $11; yellow cling peaches, $44, $37 and $17, pears, $60, $44 and $32.

These prices are said to be considerably higher than those paid by independent canners, indicating that it pays growers to pack their own fruit.

Making Swiss Cheese "Eyes"

INSTEAD of leaving the formation of "eyes" in Swiss cheese largely to chance—as for generations has been the practice—the United States Department of Agriculture has discovered that it is possible to produce these desirable spaces by introducing into the milk a specific organism.

The Swiss cheese made by the Government method is of such good quality that one of the largest dealers in this country buys all of this kind he is able to obtain.

Double L. A. Stock Yards

ADDITIONS to the Los Angeles Union Stock Yards, which will double their cattle capacity, are at once to be built, to keep pace with the rapid development of Southern California. Heavy concrete pavements and troughs of the same material will give the new yards the same permanence which characterizes the original pens.

There will be manholes and sewer connections, with water plugs for fire protection and cleanliness, patent latches and locks; special arrangement for gates and every other facility for prompt and careful handling of livestock. The concrete work in the alleys will be corrugated to prevent animals from slipping.

"Solar Vitalizing" Foods

A NEW process for preserving orange juice is being tried at Covina—placing bottled juice under a specially constructed sheet of glass for a few hours. A large quantity of orange juice has thus been "solar vitalized" experimentally for members of the California Fruit Growers' Exchange. The capacity of the plant is 2400 gallons per day.

Los Angeles capitalists have formed a company for placing solar vitalized orange juice on the market. A similar plant is to be erected in the citrus belt for processing lemon juice. A grape juice plant at Fresno and an apple juice vitalizer at Redlands are contemplated. Further particulars of this new process will be given in an early issue of ORCHARD and FARM.

Controlling Lettuce Disease

THE most promising method of controlling brown blight, a disease which menaces the lettuce industry of Imperial Valley, is to develop a blight-proof variety of New York Special, according to the United States Department of Agriculture which is undertaking to produce this improved sort.

The germ of the disease appears to live in the soil and to increase in numbers so rapidly that it generally is unprofitable to grow more than two crops of lettuce on the same land in the region named, even when other crops have been grown for one to three years between lettuce crops.

When actual count at harvest time shows no more than 1 per cent of infested plants it is considered safe to plant another crop, but when 3 per cent to 5 per cent of the plants are infected, putting the ground again in lettuce is not advised.

Oregon Growers Reorganize

THE Oregon Growers' Association, a State-wide fruit marketing organization formed four years ago, recently decided to discontinue the handling of all fruits except dried prunes. Beginning next year, members will be permitted to withdraw any year in March, the crop contracts being for one year.

Pacific Coast States have practically a monopoly on dried prune production in the United States, which in 1922 amounted to 300,000,000 pounds. Of this quantity California contributed 227,000,000 pounds, Oregon 60,000,000 and Washington 12,000,000. Foreign importations amount to 36,000,000 pounds per year.

The sweet French prune, commonly grown in California, brings a better price than the tart Italian variety produced in the Northwest, the present retail price of the former being the same for 60-70s as for 30-40s of the latter.

Accept Growers' Estimates

WALNUT prices should be based upon crop estimates furnished by growers, rather than predictions made by experts, in the opinion of L. D. Batchelor, professor of orchard management, University of California. This recommendation is made in spite of the fact that the latter are considerably better guessers than the former.

Growers overestimated the 1923 walnut crop 19 per cent—4000 tons—while the manager of the California Walnut Growers' Association overguessed the crop only 10 per cent, basing his estimate on information gathered at first hand and by his co-workers. Even this error is too great, admits Professor Batchelor, who points out that—

"Too high an estimate tends to encourage contracting the crop at too low a price. A cent too low the past season would have meant a loss of $380,000 to growers. On the other hand, too low an estimate might result in the association having to buy nuts in the open market to cover contract shortages."

It is believed possible, by educating growers in the art of crop estimating, to forecast yields with the greatest possible accuracy.

San Francisco Stock Show

IT IS expected that a livestock and dairy show will be held in San Francisco next winter as a result of steps recently taken to erect there a $1,200,000 exposition building on land costing $[illegible],000. The project is to be financed by private citizens, from whom the city has agreed to lease and ultimately buy the property.

Horticultural exhibits, automobile and machinery shows are expected to be held in the new building, as well as livestock displays.

This enterprise, according to Rob Jones, secretary California Dairy Council, is the successful culmination of a movement which started with the holding of a livestock show in the California building of the Panama Pacific Exposition. The show cost $90,000, of which $30,000 was spent in fitting up the building.

Cotton Baffles Cutworms

PROTECTING deciduous fruit trees from caterpillars with cotton is recommended by Lloyd Austin of the division of pomology, University of California. A handful of loose cotton is tied around the trunk of the tree a few inches above the ground, and fluffed out in the form of an inverted funnel. The worms are said to find crawling over this cotton barrier practically impossible.

Poisoning with bait, made as follows, also is recommended:

White arsenic or paris green, 2½ pounds; bran, 50 pounds. Mix dry, then add the following mixture: lemons—chopped fine, including rind—6 pounds; cheap syrup or molasses, 1 gallon; water, 5 gallons. Add enough more water to make a wet mash. Sprinkle liberally around trees in the evening.

THEY SAY

"Taxing Farmers Indirectly"

H. J. BAADE

Napa County Farm Adviser

H. J. BAADE

AMERICAN farmers pay more than their share of taxes, not only directly, but indirectly. The latter are easier to levy, because in most cases the victim is unconscious of the imposition. It has been estimated, for example, that farmers of the United States annually are taxed $200,000,000 for worthless securities, of which Napa County buys $160,000 worth, according to a local financial authority.

Transportation companies got more money out of the 1923 grape crop than did the farmers who raised them. Before a railroad will ship a car of grapes to the Eastern market it requires the farmer to give a bond for $800 or $900, being unwilling to take chances on the fruit selling for enough money to pay the freight. Farmers are forced to take red ink chances right along.

The farmer is just as smart as anybody, but he works alone most of the time while others are putting their heads together and devising how to get an unfair share of the wealth he creates. That city men are succeeding in doing this is indicated by the fact that of every $350 worth of farm products sold to consumers the middlemen get, on an average, $250 and the farmer only $100. Urban residents evade a large share of their taxes, while the farmer's property—being spread out where everybody can see it—does not escape.

The remedy is co-operation and education. A very proper effort is being made to reduce the cost of Government, yet Extension Service officials see so much more work that needs to be done than they are able to perform on account of lack of finances, that they continually must strain every resource at their command in order to accomplish as much as possible.

I know co-operation will solve the farmer's marketing problem because last summer in Denmark I saw how it was doing that very thing. Danish farmers no longer worry about selling problems; therefore their attention is directed [illegible] to larger and more efficient production. They buy as well as sell co-operatively, going one step farther in eliminating surplus middlemen than is generally attempted in the United States at the present time.

Your Garden of Flowers

By HELEN TEMPLE

GROW ASTERS CONTINUOUSLY. [illegible] color of great variety and brilliance may be achieved in our gardens of flowers with asters for more than six months of the year, if they are started in boxes from January till June. The best method to obtain this continued blooming is to follow a set schedule. For instance, when your bills come pouring in the first of the month and you feel kind of discouraged, hop up and go round the [illegible] to your grocer. Borrow from [illegible] a cigar box in which to plant your [illegible].

HELEN TEMPLE

After a month or two your income bills will be a reminder to plant more asters. The fun you have in starting your little seed boxes takes the "dinginess" out of the first of the month. Then, in May, when your asters begin to bloom, you won't at all mind receiving monthly statements.

Asters started in March should be set out in early May. Continue setting out later plants until the first of August. If this schedule of planting is followed your garden of flowers will cheer passersby as late as November with bright colors.

Soil is one thing asters don't worry [illegible] it. They grow in almost any place where there is an abundance of sunshine. Plant them in rows about two feet apart to facilitate cultivation, which should be rather deep. Irrigate thoroughly when setting out little plants [illegible] again in a week or ten days.

After plants are well established irrigation and cultivation is usually cut down to two or three-week intervals. Use trenches for irrigation and thoroughly soak the ground each time. Follow with a deep cultivation, leaving the surface of the soil pulverized.

BEST VARIETIES OF ASTERS

New varieties in asters? Yes, we have them! When asters first began to be asters they were closely related to the thistle family, which ran well into 300 species. However, the aster has come into its own during the last ten years, until it now is quite as important as the carnation or the chrysanthemum.

Aster varieties are very distinct. We must be careful in choosing varieties, else we shall be disappointed in results, because the effect of one sort might be all wrong, while another variety of the same color would produce the exact effect we wished.

American Beauty asters are big, fluffy flowers, with incurved petals resembling the chrysanthemum. The plants branch freely, with stems averaging two feet in length, while the flowers usually average more than four inches across during the height of the season. I have found these big asters among the best keeping flowers I have ever grown. They last for weeks in the garden and a bouquet is hardly wilted two weeks after cutting. As for [illegible] in the garden, I can hardly praise asters enough, for the plants are literally covered with flowers during their season. Varieties with which I am personally acquainted are Heart of France (red), September Beauty ([illegible] pink), Peach Blossom (light pink and rose combination), Azure Blue ([illegible] clear blue), white and lavender.

KING ASTER WELL NAMED

The King Aster is a distinct variety. It produces straight quilled [illegible] sturdy stems. The blossoms [illegible] fine as cut flowers, and keep [illegible] than any other aster grown, owing to the formation of the petals, [illegible] are long and narrow, being [illegible] lengthwise which gives the [illegible] effect.

The [illegible] varieties of King Asters are [illegible] and double and deserve a [illegible] in every garden. Plant along a [illegible] or against the house to bring [illegible] lines. The King Aster [illegible] very fine when used in a [illegible] the American Beauty or [illegible], using the King in the [illegible]. All three of these are late [illegible].

[illegible] Comet Asters, which also are [illegible] Ostrich Plume or Aster [illegible] wonderful big flowers often [illegible] to six inches across, [illegible] petals which [illegible] The plants [illegible] two or more feet [illegible] twenty to [illegible] in a [illegible] more [illegible]

You may choose colors ranging from white through the pinks to red, lavender and violet to purple and a beautiful sky blue. Quite often I have heard passers by remark, when passing our garden of flowers last year during aster blooming time:

"Oh, see those immense chrysanthemums!" They really did resemble Ostrich Feather Chrysanthemums of the finest varieties.

BEST KIND FOR BORDERS

Queen of the Market, or Queen of the Earlies, is one of the best early varieties. While the blossoms are not as large as those of the Comet and American Beauty, they are large enough to make a beautiful display, either in the garden or in vases. The stems are long and the flowers double, with soft out-curved petals.

These asters grow about a foot high, but spread into circles two or three feet in width. As a border along the walk or across the front of a lawn or in the parking-bed, the Queen of the Earlies is unusually effective.

I overcame the irrigation problem with these asters, which often lie against the ground with their blossoms, with a long six-inch board pushed under the row of plants, one on either side. By pushing the board carefully under the branches and then bracing it up edgewise, the water can run through the trenches without damaging the blossoms, which are held high and dry out of the mud.

Two of the best mid-season asters are Imperial and New Royal. The former has rather short petals and is extremely double, with long, sturdy stems, and may be had in all the more delicate shades. The Royal asters are similar to the Queen of Earlies, except in season and growth. The season of blooming is later, while the blossoms are larger and the petals are broad and incurved. This variety may be obtained in lavender, white, pink and purple.

Other popular asters of thrifty growth and choice colors are found among the Peony Flowered, Dwarf Chrysanthemum, Autumn Glory, Single China, General Joffre and the Hardy asters. The latter are fine, permanent flowers in the perennial border. They bear single blossoms, flowering in the late summer. The new hybrids among the Hardy asters are very fine additions in every garden.

SEASONABLE GARDEN WORK

In April the flower garden seems to grow by leaps and bounds. Sunshiny days with perhaps a few showers and an abundance of heavy dews thrown in for good measure and cold weather safely out of sight, make April a month of growth. Of course, we must not sit down with our hands folded and watch our gardens grow. There are just dozens of plants and bulbs to be started this month, especially tender varieties.

All mid-summer blooming bulbs should be in the ground before the last of the month. Hurry the dahlias into the ground. Plant another dozen gladioli while the planting mood is in full swing. One can't have too many gladioli. Other bulbous plants, such as tube roses, tuberous begonias, caladium and cannas, are planted this month.

All hardy perennials should be set out during this month, while the weather is mild. This is also an ideal time to divide your herbaceous perennial roots that grow in large clumps, such as iris and callas.

Divide the chrysanthemum clumps, or make cuttings for fall bloom. Also make poinsettia cuttings and start them now. Violet beds that call for renovation should be dug out and the new plants set out. Divide the old from the new, using a sharp knife for the division and burn the old plants, if they appear knobby.

And last, but not least, watch the bugs and worms. If you notice freshly eaten leaves, make a thorough search for the intruders and kill them with poisonous sprays. Worms appear especially ravenous this year. It has taken repeated sprayings every few days to save our garden, and yet they have destroyed many soft leaved plants, such as pansies and scarlet climbers.

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New Machine for Control of Wheat Smut

By V. H. HOFFMAN
Division of Agricultural Engineering, College of Agriculture, University of California

ABSOLUTELY no doubt remains—copper carbonate dust properly applied to seed wheat is a sure control for bunt or stinking smut, the wheat disease. This disease which so long has taken its annual toll from the wheat supply of the world can be definitely conquered. Not only does the proper application of this fungicide destroy the smut spores and any weevils that may be present and render the seed grain unfit for rats and mice to eat but it also seems to increase the vitality and vigor of the seed.

The old wet processes using bluestone solution or formaldehyde often affected the seed very seriously, besides occasioning much extra work and bother.

The dusting may be done at any time, but the best time is as soon as the wheat has been recleaned after being hauled in from the harvester.

A NOTE OF WARNING

Copper carbonate dust is poisonous to man as well as to fungi; hence some care must be exercised in using it. After handling the chemical or grain treated with it the hands should be very thoroughly washed before food is handled. Disregard of this precaution may result in severe pain in the stomach and bowels. Some have been "sick-a-bed" for two or three days from this cause.

The dust flying in the air likewise is irritating to the eyes and nasal passages. If breathed in any considerable amount it causes much discomfort and even serious illness.

The Agricultural Engineering Division, at the branch of the College of Agriculture at Davis, having made a study of existing machines for applying copper carbonate dust to seed grain has designed, built and tested a new machine for this purpose.

The requirements of such a machine are the following: (1) It must coat thoroughly every part of every kernel; (2) it must allow little or none of the chemical dust to escape into the air; (3) it must have sufficient capacity, (4) it should also be low in cost, simple in construction, durable, economical of power and easy to operate.

The machine above mentioned meets these requirements fairly closely. It is a rectangular box 3 ft. by 3 ft. by 5 ft. inside, built of best quality tongue-and-grooved flooring painted in the joints as the box is built.

A 2½-inch pipe, passing diagonally through two corners, is used as the driving shaft. Thirty-three revolutions per minute is the best speed for this size. Smaller sizes and other shapes may be built.

OTHER SHAPES DESIRABLE

A cubical box, similarly mounted, would be slightly better than the oblong shape. A vinegar barrel might be mounted and turned by hand or a common small size barrel-type churn might be used. In every such case the best speed depends upon the size and shape of the mixer. When the right speed is reached it will require more force to turn the machine and the tossing and tumbling about of the grain inside will be the most violent.

The grain put in at one time should occupy only about one-fourth of the total space inside. The best proportion of copper carbonate dust is 2 ounces for each 30 bushel or 4 ounces per sack. The machine should be turned until every kernel is thoroughly coated. Two minutes is the least time desirable for each treatment.

When the dusting machine is tight built and all holes, such as those around the shaft, are carefully wadded with cotton cloth soaked in shellac varnish, no dust should escape during the dusting. During the resacking, considerable dust is apt to boil out through sides of the sack as the treated grain flows in. This danger may be obviated by using the machine out of doors or in a building through which a good draft of air passes.

In the case of the diagonal revolving box mixer before mentioned, a small metal screen nearly surrounds the

"It Does the Business."

as it hangs in its holder. From the back of this screen a tube goes to a suction fan which discharges either through a pipe to the outside of the building or into a vacuum cleaner bag which saves the dust for reuse.

The common tendency is to put off the making or buying of a mixer until it is needed. It is none too early to start work on a mixer for the crop to be harvested in 1924. Every grower of wheat should treat his seed seriously. The men of the United States Department of Agriculture and the University of California who have labored for years on the problem of smut control at last are very sure they have found a really effective remedy and are hopeful that eventually our wheat fields may be almost, if not quite, smut free.

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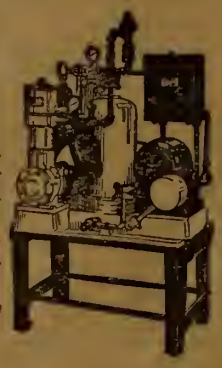

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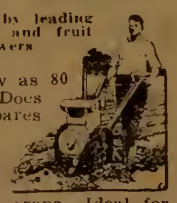

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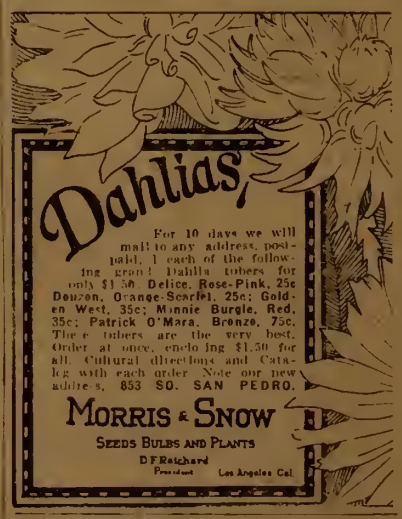

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WHEN ANSWERING ADVERTISEMENTS PLEASE MENTION THIS MAGAZINE

Seasonable Pear Blight Control Work

IN order to control pear blight, the orchard should be gone over at regular intervals of a week or ten days throughout the spring and early summer, according to L. H. Day, of the division of pomology, University of California. If possible, all infected twigs and branches should be cut out and cankers on large limbs sacrificed and disinfected.

It is not best to remove watershoots from the trunks and scaffold branches during the active period of the disease, because the wounds may become infected. In cutting off twigs and branches, the cut should be made to a lateral a foot or more below external evidences of the disease and the wound disinfected. The severed branch should not be allowed to fall through the tree, as this might wound healthy branches and inoculate them with the blight bacteria. The twigs should be raked together and burned.

The success of scarification to arrest development of blight cankers depends upon the fact that the disease runs in the outer bark for some time before penetrating inwardly to the cambium layer. If the cankers are operated on when new they can be arrested. This operation consists in shaving off the outer green part of the bark down to the fibrous layer all over the canker and for several inches beyond the evidences of the disease. Not the least speck of outer bark should remain within this area.

If cankers become somewhat aged before discovered, it is necessary to shave down deeper until faint lines of white, healthy tissues begin to show through the tissues blackened by the disease. But the operation is not so successful on these older cankers for the bacteria may get too deep to be reached by the disinfectant, or the bark may have to be shaved down so close to the cambium layer that the disinfectant will kill the cambium. For this reason the orchard should be gone over every week or ten days.

The disinfectant which has been found most successful for the wounds and for the operating tools and [illegible] is made as follows:

Dissolve eight half-gram tablets of cyanide of mercury and eight half-gram tablets of bichloride of mercury in one pint of water and to this add three pints of commercial glycerine. Apply with a paint brush about one and one-half inches wide. Keep the material in a glass jar—never in metal containers.

Raisins Are Fumigated

SIXTY TONS of Sun Maid raisins recently were successfully fumigated at Dinuba by the new vacuum process, under the direction of D. Mackie and S. I. Gleason, of the [illegible] Department of Agriculture. Carbon disulphide and carbon dioxide were combined in order to avoid [illegible] of explosion, which is present when only the first named chemical is used. It was found impossible to explode the new mixture.

Colma potato growers are investigating vacuum fumigation with a view to using it to free their product from the tuber moth, which last year is said to have caused a loss of $40,000 in that district named, by costing to [illegible] the Northwest market.

WHERE CALIFORNIA LAMBS GO

Over half of California's [illegible] of 1,400,000 lambs are sold for [illegible] according to W. P. Wing, who furnishes the following data regarding the disposal of these animals: Shipped alive to midwestern markets [illegible] number dressed for eastern markets [illegible] consumed in California during the months of March, April and May, 4,9,000.

Fattening Lambs for the Market

By ROBERT F. MILLER
Associate Professor of Animal Husbandry, University of California, Davis

MORE and more interest is being [illegible]ted in the [illegible]ing of lambs for market and a [illegible]r of sheep men have found it a [illegible]le enterprise during the past [illegible]. Much depends, of course, upon the [illegible]bility of the lamb market, the [illegible]ity of feeder lambs, and the [illegible] and cost of feed.

[illegible]ing the past two years, feeders in [illegible] have operated on a gradually [illegible] market, due, no doubt, largely [illegible] heavy shipment of spring lambs [illegible]rn markets. Last year about [illegible] spring lambs were so marketed, [illegible] about 50,000 carcasses forward[illegible] in refrigerator cars. This general usually are grown on the place and simply marketed through the sheep.

Most feeders prefer to chop or cut the alfalfa hay, claiming that the lambs make more economical gains, that there is less waste and a considerable saving in storage, and that chopped hay is more conveniently handled.

In a feeding trial recently conducted at the University Farm, when charging $3 per ton for cutting hay, the whole hay proved a somewhat more economical feed. In feeding chopped hay, the grain usually is fed on top of the hay in the same manger. In some of the larger feed yards in the Bay region, alfalfa meal is fed extensively and usually a little cottonseed meal and molasses are mixed with the grain with excellent results.

Above—Lamb feeding corrals of C. O. Scarlett, Woodland (Yolo County). Note good drainage afforded by elevation. Right—The Scarlett feeding barn accommodates 2000 lambs. Equipped with mangers for feeding chopped hay.

[illegible]portation results in a strong Pacific [illegible]st market throughout the year, as [illegible] spring surplus is taken care of and [illegible]ere is never an over-supply.

The feeder lamb market is supplied [illegible] Northern California range flocks, in [illegible]tricts where the feed is not good [illegible]ugh to finish the lambs for the [illegible]g trade. There is also a "tail end" [illegible] every hand and these are offered as [illegible]ers in the fall.

A handy weight" is from 58 to 62 [illegible]nds. After being fed from six to [illegible] weeks, the lambs are marketed [illegible] about 75 to 78 pounds, which is con[illegible]red the most desirable size. Too [illegible]h cannot be said for careful buying [illegible] feeders—"Well bought is half sold."

[illegible]ith the present prices of feed, a [illegible]d of $2 per cwt. between buying [illegible] selling price is required to make [illegible] profit.

[illegible]ny feeding operation, cheap feed [illegible] considered highly essential. Alfalfa [illegible] the principal roughage and whole [illegible]olled barley is the main grain feed. [illegible]ver, some feeders use yellow corn, [illegible]seed cake, cull beans or black[illegible] molasses.

[illegible]ntry feeding the hay and grain

About 2½ pounds of hay and 1 pound of grain mixture is a full feed for a 65-pound lamb, and full feeding is very desirable to finish the lambs in the shortest period.

One of the extensive feeders in the Sacramento Valley is C. O. Scarlett of Woodland. He fed about 5000 lambs last winter, using chopped alfalfa hay and whole barley. His barn is arranged especially for feeding chopped hay and he prefers it to long hay. He takes out the fat lambs every two weeks and ships usually to San Francisco.

Scarlett puts in a new supply of feeders as necessary. He finds with a 2 cent spread between the buying and selling price, he can market his grain and hay at a very good price, to say nothing of the fertility added to his land.

More farmers should consider marketing their hay and barley through livestock and in that way prevent the grain broker from taking part of their profit. Incidentally, they can improve fertility and thus, in general, make farming more profitable.

Valencia Orange Show to Be a Winner

T[illegible] fourth annual California Valen[illegible] Orange Show will be held in [illegible] (Orange County) this year [illegible]y 16 to 25, inclusive, and ac[illegible] to the present plans of the [illegible] directors will be one of the [illegible] comprehensive fruit industrial [illegible]mobile exhibits ever attempted [illegible]te.

[illegible] Renaissance will be the motif [illegible] year's event. All of the mani[illegible] of sunny Italy, from the [illegible] mountains to the fertile [illegible] will be pictured by the scenic [illegible]

[illegible] this year will be more than [illegible] exhibit of the citrus indus[illegible] phase of human endeavor [illegible] California has been taken [illegible] by the board of di[illegible] will be portrayed by a [illegible] exhibits housed in one great [illegible] tent.

[illegible] there will be an [illegible] In the [illegible] already have [illegible] agricultural, [illegible] of [illegible] opening on [illegible] a great [illegible] details [illegible]

[illegible] ment features for this year have been given careful consideration, so that in addition to the educational features and exhibits there will be a constant round of pleasure.

Gastia's Royal Italian Band, with a magnificent ballet and a series of noted operatic stars, will be one of the feature attractions in the big citrus hall both afternoon and evening. In addition, arrangements have been completed with one of the leading California carnival companies for the big lot, where mirth will reign during the entire life of the show.

The ten-day program arranged in Anaheim will include visits by notables of both State and Nation. Governor Friend W. Richardson and the California Editorial Association will be guests of the Orange Show, probably on May 21, and plans are rapidly being perfected to welcome other notables.

MARKET WOOL CO-OPERATIVELY

The Pacific Co-operative Wool Growers, an organization composed of 2600 sheep men in California, Oregon, Washington and Idaho, markets wool co-operatively. Particulars may be obtained from W. P. Wing, 814 Santa Fe [illegible], San Francisco.

Landino Clover

LADINO clover, a large or giant form of the familiar little Dutch white clover used on lawns, is a valuable new forage crop, about which the U. S. Department of Agriculture furnishes the following information:

On the rich, moist valley lands bordering the Po River, Northern Italy, Ladino clover long has been a favorite crop. Under favorable conditions, it forms a dense mass of succulent herbage ten to twenty inches deep, composed of large leaves borne on stalks arising from prostrate, creeping stems.

This crop is especially valuable for pasture on rich, well-watered soils. It does not succeed on poor ground or where the top soil becomes dry at any time. It withstands severe cold better than extreme heat, as the plants turn red after prolonged exposure to hot sunlight.

Ladino clover is very palatable and nutritious and has been known to feed two to four mature animals through an entire season. For milk cows, it results in a greater flow of milk than any other grazing plant. Animals frequently will leave alfalfa, red clover or grass to feed on Ladino.

Although the Department has been growing Ladino for twenty years, little seed has been available. During the past five years it has been grown over an increasing area in the Northwest, where it produces seed abundantly.

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WHITE LEGHORN baby chix of unusual value, from especially well culled hens mated with full pedigreed males. Prices per 100: April, $12.00, May and June, $12. 100 per cent live, strong chix guaranteed. We are accredited by the Sonoma County Farm Bureau. THE PIONEER HATCHERY, 476 Sixth Street, Petaluma, Calif.

10c EACH, "Superior Strain" S. C. White Leghorn baby chicks, delivery May and June. Big hatches and low overhead enable us to sell our high-vitality chix in accordance with our motto: "Highest Quality at Lowest Prices." Booklet describing our strain free on request. SUPERIOR EGG FARM, Anaheim, Calif.

PETALUMA HATCHERY—Established 1902 by L. W. Clark. Accredited by Sonoma County Farm Bureau. White Leghorn chicks every day. Guaranteed safe arrival and full count. Free circular. L. W. CLARK, 615 Main St., Petaluma, Calif.

WHY DELAY? Place your order for 1924 chicks with the White Hatchery, the hatchery with a reputation for good chicks. Safe arrival, full count guaranteed. Member of Accredited Hatcheries, Sonoma County. "A" and "AA" stock. Price right. Send for catalog. WHITE HATCHERY, Petaluma, Calif.

THE WORLD FAMED FOWL—Russian Orloff and Halo Sacredo Turkens. Booking orders now for hatching eggs. Circulars FREE. Only breeder of GENUINE stock in America. GEO. SCHAEFFER, MENLO PARK, CALIFORNIA.

HIGH-GRADE CHICKS from selected, Hoganized stock at reasonable prices. White Brown, Buff Leghorns, Rhode Island Reds, Barred Rocks, Anconas and Black Minorcas. Union District Hatchery, Los Gatos, Calif.

ORDER your W. L. pullets and breeding cockerels from Petaluma's finest raising plant. "Stock that will not disappoint you!" Write for information. L. MUNCHIN, Prop., Reliable Pullet Farm, Petaluma.

BABY CHICKS all kinds, hatching each Monday. Ducklings, turkeys, hatching eggs. Pullets, pigeons, rabbits. FANCIERS' EXCHANGE, 610 S. Main St., Los Angeles.

CLOVER CUTTERS, $8.50 to $45. Write for circulars. ARNOTT & CO., 114 S. Los Angeles St., Los Angeles.

POULTRY

Chicken House Sash

20-in. wide by 25-in. high, 80c. A dozen different sizes in stock for immediate shipment. Chicken House Sky Lights, 36-inch by 40-inch with glass, $2.00. Screen doors, cupboard doors, windows and labor-saving fixtures for the home. Send for free catalog. Absolute satisfaction guaranteed. O. B. WILLIAMS COMPANY, Sash and Doors, 1843 First Ave., South Seattle, Wash.

TURKEYS, DUCKS AND GEESE

CASA DE ROSAS TURKEY RANCH, Carmel-by-the-Sea, Cal. Engage your GOLDBANK BABY TURKS now. Special reduction chicken sale, prize stock. Creation Brown Leghorns, pens, chicks, eggs. Also Toulouse geese and Carneau pigeons.

WILDBLOODED BRONZE Breeding Toms, Hens and eggs. A small flock ready to herd. Write for prices for each. JENKINS, Route 3, Box 1176, Burbank, Calif.

FARM LAND FOR SALE

140 ACRES ½ mile depot, bank, schools, cannery, new 5-rm. hung., pure soft water piped in, fruits, fronts. Pac. Hwy., paved, 20 cult. lots tmbr., $5000, ½ cash. 337 A. coast dairy, stock, tools, equip., 70 cult., 3 miles town, green grass year round, $6700, 1-3 cash terms, 5% int. 30 A. well imp., ½ mile 2 r. school, 20 cult. lots fruits, cows, team, equip. $3000, 2-3 cash. Best values in West. B. JOHNSON, Saginaw, Oregon.

OUR BACK-TO-LAND PLAN—We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land; deep, rich, tried soil; complete irrigation with cheap water, thorough drainage, rail, water and highway transportation. Write owners. SUTTER BASIN COMPANY, California Fruit Bldg., Sacramento, Calif.

NO COMMISSION. Sell your farm direct to buyer. We put you in touch with thousands of buyers through our clearing office service. Booklets of farms for sale by owners free. OWNERS' NATIONAL LISTING BUREAU, INC., 439-40 Roberts Bldg., Los Angeles, Calif.

MUST HAVE CASH—Two biggest farm bargains in California, both improved, house, barn, garage, fenced, clear deed, full price given; 20 acres, Humboldt County, $3000, 160 acres Modoc County, $3200; level, productive land. Owner, C. E. WESTENHAVER, Riverside, Calif.

POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, California.

SIXTEEN SECTIONS pasture for sale or lease. F. P. McGINNIS, Kelton, Ariz.

FARMS WANTED

CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

FARM WANTED—Immediately, from owner. Send particulars. MRS. ROBERTS, Box 83, Roodhouse, Ill.

WANT to hear from owner having farm for sale; give particulars and lowest price. JOHN J. BLACK, Chippewa Falls, Wisconsin.

FARM TRACTORS, MACHINERY

NEW and rebuilt implements at special prices. Call and see them. ARNOTT & CO., 114 S. Los Angeles St., Los Angeles.

ALMOND HULLERS with separating devices manufactured by DEUBEL & CO., 516 First St., San Francisco.

SITUATIONS WANTED

WANTED Employment as ranch foreman, excellent refs., not run kind. H. H. ROBINSON, Gen. Del., Oceanside, Calif.

HELP WANTED—Instruction

WANTED—Women, girls, learn gown making at home. Many spring openings. $35 week. Learn while earning; sample lesson free. Write Franklin Inst., Dept. K-555, Rochester, N. Y.

EARN $110 to $250 monthly, expenses paid as Railway Traffic Inspector. Position guaranteed after completion of 3 months' home study course or money refunded. Excellent opportunities. Write for free booklet C-91. Stand. Business Training Inst., Buffalo, N. Y.

BULBS AND SEEDS

GLADIOLUS, mixed, $1 buys 20 large or 40 blooming size or 100 planting size or 1000 bulblets, or 12 named bulbs, my selection. C. O. JORGENSEN, Salinas, Cal.

GIANT WINTER RHUBARB ROOTS—Bear in 90 days, $1.25 doz., $7.50 cwt., prepaid. FORREST WALKER, Puente, Calif.

TOBACCO FOR SALE

HOMESPUN TOBACCO. Chewing, 5 lbs., $1.75, 10, $3; smoking, 5 lbs., $1.25, 10, $2; pipe and recipe free, pay when received. CO-OPERATIVE FARMERS, Paducah, Ky.

MISCELLANEOUS

LAWNSHOWER SQUARE SPRAY SPRINKLERS distribute water uniformly over a large SQUARE AREA, reaching CORNERS of lawn or garden without flooding sidewalks and wasting water. Cast brass. Price $1.25 post paid. Money refunded if not satisfactory. LAWNSHOWER MFG. CO., 727 Tennessee St., Vallejo, Calif.

NAVADO Alfalfa hay for sale. JOHN BENSON, B. D., Fallon, Nevada.

When answering advertisements please mention this paper.

Discoveries of Plant World Explorers

(Continued From Page 3)

date districts of the Old World for the best varieties to try in the New World. Many were the mistakes made and at numerous periods in the early history of the industry the disappointments were so great as nearly to cause abandonment of the project.

The first commercial introductions, made in 1890, consisted mainly of misnamed varieties of comparatively little importance which, as they came into bearing, caused a great setback. Instead of giving up in despair, however, those interested redoubled their efforts to introduce the industry, and in 1899 and 1900, introductions were made of what were known to be the best varieties grown abroad. Gradually the young industry came into being, but so recently that every stage in its development is well known to numerous persons associated with it. By way of illustration, as recently as 1910 the first Deglet Nur dates, now regarded as a variety of unusual excellence, were ripened in Arizona.

To make a long story short, thanks to the efforts of a comparatively few far seeing men, date culture in the Southwest now is a growing, well established, commercial industry. Reports from the Department of Agriculture show a commercial production for 1923 of approximately a half million pounds with a value in excess of $200,000!

Yet the present production of dates is but a small fraction of the total consumption of the United States, which amounts annually to approximately 50,000,000 pounds. The value of the local product, however, is approximately ten times per pound that of the foreign product.

The future of the new industry appears to be assured. At present, practically all production is consumed on the Pacific Coast and the possibilities for increase appear to be exceptionally bright.

To one little familiar with the period of struggle, trial and tribulation through which the industry has passed, its present status, as evidenced by the program presented at the First Annual Date Growers' Institute held at Coachella in Riverside County recently, constitutes perhaps the greatest possible tribute to the efforts expended by the Department of Agriculture, by the Agricultural Experiment Station of the University of Arizona in introducing and establishing date culture.

A glance at the program indicates at once the remarkable advances made in the fifteen years since standard commercial varieties have been under observation and study. Such technical subjects as the growing and handling of date offshoots, the rooting of offshoots, packing and marketing methods, curing and processing plants, the control of date pests, constitute an important part of the program.

It is certain that the future of the date industry is assured. The people of the United States can and will absorb many times the present production, or the production in sight of the young acreage not now in bearing. The principal production problems have been solved sufficiently to establish the industry on a sound commercial basis. The character of the growers themselves and the aid and assistance of the Department of Agriculture officials, guarantee that what further problems may arise will be solved efficiently.

This illustration of the introduction, fostering and promotion of a new industry destined to mean millions of dollars to California and Arizona, but typical of the splendid work done by the Division of Foreign Plant Seed Introduction of the U. S. Department of Agriculture. It can be duplicated over and over again with crops and other sections of the Nation at large. It is high time California farmers and fruit growers realized the full appreciation for the little publicized and less advertised activities of this important branch of the Federal Department.

Example of City and Country Co-operation

By H. W. KERRIGAN

Secretary Petaluma Chamber of Commerce

THE Petaluma community is a good example of town and country co-operation. The city of Petaluma has taken a leading part in developing its supporting territory, which has made it one of the most prosperous municipalities in the State. Concrete proof of this fact was furnished during the recent war, when Petaluma's per capita quota of Liberty Bonds was more than double that of any agricultural city in the State of similar size and natural advantage.

To the Petaluma Chamber of Commerce with its initiative to help its two leading industries, poultry and dairying, belongs the chief credit for making the surrounding country one of the world's richest agricultural districts. The farms located within ten miles of the city sell upwards of $18,000,000 worth of poultry products annually, a most remarkable record of intensive production. This does not include dairying, which adds at least five more millions to Petaluma's annual output.

Petaluma is known as "The Poultry Capital of America" and "The World's Egg Basket." That this is not an empty honor is indicated by her bank deposits and the bond buying capacity of her citizens. Her merchants sell more than 500 tons—two trainloads—of feed daily, and handle more than a million dozen chickens annually in addition to $10,000,000 worth of eggs. Petaluma hatcheries produced more than 12,000,000 baby chicks during the year.

In addition to community building, our enterprising civic organization makes its chief business helping the farmer solve his many problems. In this work we have had an active support of the Farm Bureau, Grange and Farmers' Union. While our merchants and professional men are repaid by the farmers' trade, much more could be accomplished if poultrymen took an active part in the work of the Petaluma Chamber of Commerce.

Here is detailed proof of real co-operation between the Petaluma Chamber of Commerce and surrounding farming district.

With the aid of poultry and tariff committees, finished and won the fight for a duty on eggs, which will mean millions of dollars made for America's poultrymen. This campaign was commended by every poultry and egg organization in the United States and was an unprecedented achievement.

Contributed $250,000 towards the development and encouragement of junior agricultural poultry farm products and calf clubs, enabling them to continue work essential to Petaluma's two leading farming industries.

Within the last year presented two silver cups for the winners of the most successful junior agricultural team at the State Farm at Davis.

Supported and endorsed the rural districts for representation on the Board of Education in order that they have an equal voice in local school matters.

Endorsed and actively participated in the membership drive of the Sonoma County Farm Bureau.

Found employment for more than men during the last year making possible for dairymen and poultrymen to get help without cost.

Furnished forty automobiles and operated with the Petaluma Grange for the entertainment of a delegation of one hundred Grangers from all over the United States.

Another extraordinary economic factor that means so much to the farmer is the success of this county and Marin in the fact that the dairy committee of the Chamber conducted a pure bred campaign, which has resulted in bringing into this district one hundred and eighteen purebred bulls.

Persuaded the State Agricultural committee to have appropriated $[illegible] to pay for the installation of the University Avian Pathology Laboratory and Experimental Station at Petaluma for the benefit of the local poultrymen.

By investigation and co-operation with the poultry department of the County Farm Bureau and the hatcheries in the district aided in the formation of the Accredited Hatchery List.

The legislative committee of the Chamber co-operated with the agricultural legislative committee, Central Farm Bureau Federation, California State Grange and California Farmers' Union in putting through necessary legislation for the farmers of California; such as the Co-operative Marketing Bill and Motor Vehicle Gasoline Tax Bills. A number of undesirable bills were killed, both in committees and in the Legislature, such as the Warehousing Bill. The state budget for the biennium was also largely secured through the influence of farmer representation at Sacramento.

S. S. Knight, poultryman and chairman of the legislative committee of the Chamber of Commerce, is responsible for all of these legislative activities.

Marking "Farm Money"

IN order to impress upon the general public the amount of money that comes from the farm the Sonoma County Farm Bureau has ordered for its members 100 rubber stamps bearing the words, "Farm Money." These stamps will be used to mark [illegible] in payment for farm products, and written by farmers [illegible] with such funds. A [illegible]

[illegible]ed-Hump Caterpillar Control

Re[illegible]ent Severe Attacks Cause Alarm—Pest May Be Destroyed by Timely Spraying

By MYER J. HEPPNER
Division of Pomology, University of California

DURING the past two years the [illegible]mped caterpillar [h]as been causing fruit growers a [illegible]l of trouble and worry. Com[illegible] have come from many sections [illegible] State, and growers ask what to [illegible]r to control this insect.

[illegible]lly all deciduous fruit trees [illegible]ed by this caterpillar, the at[illegible] so severe in some cases that [illegible] are entirely defoliated long [illegible] the natural time for leaf shed[illegible].

[illegible]g 1922 the writer saw a young [o]rchard completely defoliated in [illegible] due to the attack of the [illegible]mped caterpillar. In the past [illegible] most growers have paid little at[illegible] to this pest, as the damage has not always been great enough [to w]arrant the expense of control [illegible]res. However, fruit growers [illegible] not take this attitude at this [illegible] the situation now is more seri[illegible] because the caterpillars have not [illegible]sted and therefore have been [illegible] increase in number.

[illegible] red-humped caterpillar is red[illegible]

[S]howing worm at [f]ork and defoliated [b]ranch. Poisonous [s]prays will destroy [th]is insect if applied [w]hile the larvae are [sm]all. Delay is dangerous.

[illegible]n color, the body being alternately [illegible] with white and black stripes. On [illegible]ment of the body one can de[illegible]r eight black protuberances, [illegible] called tubercles. The head [illegible]rth segment are red in color, [illegible]rticular segment being larger [illegible] the rest and possessing a dis[illegible]p. The insect takes its name [illegible] peculiar red hump.

[illegible]terpillar often attains a length [illegible] before entering the hiber[illegible]e. It is the larval and pu[illegible] which the grower generally [illegible] never detects the [illegible]. Before a successful cam[illegible] be waged against this pest [illegible]r should have a thorough [illegible] of its life history.

[illegible] of this caterpillar are de[illegible] the leaves soon after the [illegible] good growth. The exact [illegible] upon the earliness or [illegible] the spring in the particu[illegible] of the State. As a rule the [illegible] begins some time in April [illegible] continues for several [illegible] followed by the appear[illegible] throughout the en[illegible] [illegible]

[illegible] were found by the [illegible] last week of Octo[illegible] [illegible] the [illegible] [illegible] [illegible] which [illegible] this form [illegible] [illegible] be found [illegible]

directly under a tree which has been attacked. With the coming of spring the larvae transform into pupae and emerge as adults, ready for mating and thus completing the life cycle.

The fact that this caterpillar attacks practically all deciduous fruits as well as many ornamentals, immediately classifies it as a pest affecting commercial trees in general and hence its control should be of interest to all deciduous fruit growers.

Unlike many of our other tree pests, this caterpillar can be destroyed effectively at either of two stages: first, during the larval stage on the tree; second, during the hibernating stage in the ground.

In view of the fact that the larvae generally feed in large colonies, it is possible to pick them from small trees and then burn those thus collected. However, this procedure is not very well adapted to large trees. To control the larvae when hand extermination methods are not feasible requires efficient spraying at the proper times.

An arsenical spray made up of 2½ pounds of powdered lead arsenate in 100 gallons of water has proved very effective. The addition of a casein spreader will give a better distribution of the spray material over the trees.

If lead arsenate paste is used, twice the amount mentioned above should be employed in each 100 gallons of water.

One of the most important factors in spraying successfully for the red-humped caterpillar is the time element. The first application should be given as soon as the hatching larvae appear; do not wait until the larvae are nearly full grown before spraying. As has often been said, "Matured or nearly matured red-humped caterpillars get fat on lead arsenate." There is a great deal of truth in this statement, for control measures applied in the form of arsenical sprays do not seem to be effective when the larvae are well grown.

In a case where there was a severe infestation in an orchard the previous year, more than one spray probably will be necessary. In order to judge when to spray, the grower must make close observations of his trees. Two sprays probably will clean up all the "red-humps," although the writer knows of one orchard that was sprayed three times during 1923. No damage was done to this orchard during that year, although the trees were almost entirely defoliated the previous year, due to red-humped caterpillar attack.

The second stage in which this pest can be destroyed is the hibernating stage in the ground, as was previously mentioned. Hand hoeing around the trees seems to be effective in destroying many of the hibernating larvae, but does not destroy all of them. No doubt cultivation, as plowing and discing, destroys a large number of these larvae, but it is the few that escape that cause all the trouble. He is a wise grower who watches his trees for the hatching larvae and then sprays instead of waiting until the larvae are full grown.

Gravenstein Apples

Continued From Page Two

neighbors in the fall and store it until spring. Winter storage has become so general, however, that the profits of this procedure are uncertain; therefore the plant is less used than formerly.

"The theory of a producer holding his crop during low price periods until the market improves is a good one," admits King, "but, after all, that is the business of dealers and speculators, being a business in itself and entailing risks too great for the average farmer to assume. Co-operative marketing associations, adequately financed, are in a good position to hold farm products until conditions are right for selling, but personally, I beg to be excused, except from operating on a very modest scale."

The walls of the storage plant are double lined, inside and out, and have a six-inch insulating space between filled with sawdust. A three-foot layer of sawdust covers the ceiling, where most of the protection against heat is needed.

The apple trays are about two feet square and three inches deep, have inch ends and single lath sides. Some trays have lath slatted bottoms, while others have solid bottoms of quarter-inch material—to hold small apples. The fruit is spread one layer deep on the trays, each of which holds one bushel. As the apples shrink slightly in storage each specimen is isolated from all others, preventing contamination from any rot or fungus which may appear, also providing for ample air circulation.

Ventilators in the roof are opened each night—except when it rains, which permits the escape of warm air and enables the temperature to descend to about 40 degrees, near which it remains during the storage season.

Some varieties keep much better than others, Newtown, Wagner and Rome Beauty being considered the best for storage purposes.

King is a director of the Sebastopol Apple Growers' Union, but is not entirely satisfied with the service of the association, which he believes should be reorganized under the new co-operative law. Steps have been taken to effect this reorganization, which will cost $1000, an expense which some growers hesitate to incur. As to the benefits of co-operative marketing, they are recognized by practically all orchardists.

Growing Good Petunias

How do you grow petunias like those which were pictured in Orchard and Farm? Please give cultural methods.—MRS. J. H. C., Stanislaus County.

THE petunia photographs brought us a great many inquiries. Petunias like those shown may be grown if suitable seed is planted and cultural directions followed.

Petunias may be sown the year around in frostless regions. The best time to sow them is in early spring in order that the plants may be set out in May and June. Set them about 15 inches apart. While petunias grow in rather poor soil and stand neglect, they will double in value if well watered and cultivated. The single varieties are more resistant to poor care than the doubles, but the latter are well worth extra care.—HELEN TEMPLE.

WATCH FOR DROOPING WINGS

Watch the wings of your Leghorn chicks in order to determine their condition. Drooping wings show lack of sufficient nourishment, because of underfeeding or inability to assimilate nutriment.

Overheating, crowding, impure air, lack of exercise and lack of green food in a rich ration also will bring about this condition. When the wings begin to droop it is time to determine what is wrong with your management or feeding.—W. J. D.

SCHOOL LUNCH IMPROVED

Tables and benches have been added to the lunch equipment in the Lafayette school (Contra Costa County) where a two-plate electric stove and a sink were installed last fall. Carefully selected food is served and the teacher reports the lunch a great success. The Parent-Teacher Association makes up the deficiency not covered by the amount the children pay.

COWS AND COFFEE LINKED

The quantity of milk and cream used annually in coffee and tea in the United States represents the total production of 3,[illegible]0,000 cows, according to the United States Department of Agriculture. Furthermore, one-tenth of all the sugar consumed in the United States is used in these beverages or a total of 800 million pounds a year.

Mineralized Water Routs Chicken Lice

No Dusting or Spraying—Birds Delouse Themselves. Fine for Baby Chicks and All Poultry.

A recent discovery promises to revolutionize all the commonly accepted methods for keeping poultry free from lice and mites. This wonderful product keeps the poultry always lice-free without the poultry raiser doing any work. It is the simplest, easiest, surest and best method ever discovered.

Lice Tabs, which is the name of this remarkable lice remedy, is dropped in the chickens' drinking water. Taken into the system of the bird, it comes out through the oil glands, and every louse or mite leaves the body. It is guaranteed to help the hatchability of the eggs, and cannot injure the flavor of the eggs or meat; is harmless to chicks and does not affect the plumage. A few days' treatment at the start and then a little added to the drinking water each month is all that is necessary.

Send No Money—just your name and address to Lice Tab Laboratories, Dept. 11, 845 S. Wabash Ave., Chicago, Ill. A card will do. So confident is the Laboratory that Lice Tabs will get rid of every louse or mite that they will send you two large double strength $1.00 packages for the price of one. When they arrive, pay postman only $1.00 and postage. Sell one to your neighbor and get yours free. If you are not absolutely satisfied after 30 days' trial, your money will be refunded. Write today before this remarkable trial offer is withdrawn.

"DURO" Water Systems

The all-round water system for household use. Supplies the home, grounds, stock, etc., and affords fire protection. Strong, simple, quiet-running, entirely automatic in operation. Send for catalogue and name of nearest dealer.

CALIFORNIA HYDRAULIC ENGINEERING & SUPPLY CO.
545 Howard St., San Francisco. 420 Third, Dept. D, Los Angeles.

Most Remarkable Offer

'Little Wonder' FIELD AND Opera GLASS $1.75 Only

Beautifully Nickel Plated

We are offering you one of the most beautiful and finest quality Field and Opera GLASS at a price that when buying somewhere else, you will have to pay 3 or 4 times as much. We guarantee the price to be the lowest in the U. S., because we imported them ourselves, and are offering them to you at practically a fraction of its actual worth.

This glass is beautifully finished, all metal parts nickel plated, covered with fine quality imitation leather. Is 3½ inches extended and 2½ inches when closed, and is equipped with powerful lenses, which will enable you to see objects miles away. Most useful for camping, hunting or distinguishing livestock out in the pasture. Use it also as an opera glass for movie or opera. Comes in a beautiful plush-lined presentation case. Special advertising price $1.75, while supply lasts.

SEND NO MONEY

Pay postman $1.75 plus postage on delivery. Money refunded if not satisfied.

American Bargain House, Dept. B-36
79 Fourth Avenue New York, N. Y.

TIRES WITH 500 NAIL HOLES LEAK NO AIR

A new puncture-proof inner tube has been invented by a Mr. M. O. Milburn of Chicago. In actual test it was punctured 500 times without the loss of air. This wonderful new tube increases mileage from 10,000 to [illegible],000 miles, eliminates changing tires and makes riding a real pleasure. It costs no more than the ordinary tube. Mr. D. R. Milburn, [illegible] West 47th St., Chicago, wants to [illegible] everywhere and is making a special offer to agencies. Write him today.

for floors

use MATHEWS

TREADOVER FLOOR PAINT

For interior floors subjected to unusual wear. It dries hard over night with a high gloss not affected by repeated washings. No heel marks show.

Mathews IN-OR-OUT FLOOR ENAMEL

For interior or exterior floors of cement or wood.

Mathews PRO-TEX CEMENT FLOOR COATING

An interior cement paint, resisting the alkali in cement and producing a high-luster, enamel-like finish on floors and walls. Dries hard and free from tack in 18 hours. In nine colors. There is a MATHEWS PAINT for every purpose.

Write for new descriptive catalog.

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I want to know more about Mathews Floor Paints.
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Address ....
City .... State ....

A SALE

of Genuine Hand Beaded TUSSAH SILK Dresses $3.98

BEAUTIFULLY HAND BEADED

Yes, we mean it, the price is only $3.98! Undoubtedly the biggest bargain sensation in years! A bewitchingly beautiful new style genuine Tussah Silk Dress, richly beaded and elegantly finished in every way. Most amazing offer ever made—don't miss it! Be quick! They will go fast!

Send No Money!

Richly made of fine quality genuine Tussah Silk, soft and shimmering—an ideal material. A striking feature is the elaborate beading—pretty bugle beads in rich color tones set in a most tasteful and elegant design. Self material narrow sash. Fashionable kimono length sleeves with slashed cuffs. Round neck; tailoring throughout is perfect, you will be delighted with the workmanship. The style is one piece, becoming to all ages and figures. HURRY! order—no money now. Pay only on arrival special sale price $3.98 and postage. If after try-on you don't think it the biggest bargain of your life, your money back. COLORS—Navy Blue, Tan, Natural, Brown or Black. SIZES—Women's 32 to 46 bust; Misses' 14 to 22 years.

A Style Fresh From Paris

Money Back Guaranteed

INTERNATIONAL MAIL ORDER CO.
Dept. D-579, Chicago

RHEUMATISM

I have returned home after 2 years' service in France with the A. E. F. While in France I obtained from a noted French physician a prescription for the treatment of Rheumatism and Neuritis. I have given it to thousands with wonderful results. The prescription costs me nothing. I ask nothing for it. I will mail it if you will send me your address. A postal will bring it. Write today

PAUL CASE, Box 452, D-160, Brockton, Mass.

When answering advertisements please mention this paper.

Growers Offer Fresh Grape Selling Plan

(Continued From Page Three)

will manipulate things to the latter's advantage.

All the statistical, analytical and clerical work of the clearing house is under the personal supervision of a Government marketing expert, which is expected to insure every shipper getting a square deal and also to conserve the interests of both consumer and grower. No dealer would be barred from the organization, provided he agreed to and obeyed the rules.

There are three classes of California fresh grape shippers: cash buyers, f. o. b. auction salesmen and consignment shippers. In spite of the obvious advantage to the grower of selling his crop for cash as soon as it is delivered to shipping point, or of disposing of it while being moved on the railroad to destination and getting paid within 24 hours thereafter, about 85 per cent of the California table and juice grapes are consigned to commission men.

CASH SALES UNSATISFACTORY

The explanation of this seeming anomaly seems to be that the latter class of dealers make the best returns, as a rule, to growers. "Making capital out of the widespread prejudice against commission dealers, cash buyers often offer attractive f. o. b. prices for fruit," relates a Fresno authority. "Although the one and only advantage of cash selling is eliminating the element of chance by receiving the money when the fruit is delivered, cash buyers — so-called — frequently pay growers only 50 per cent of the price agreed upon, giving for the balance a 30-day note.

"In many cases this note is only partly paid, or not at all, the explanation given being that because of an unexpected drop in the market the dealer was unable to obtain sufficient funds from the shipment fully to meet his obligations to growers. The net result, therefore, is that the producer often receives less for his fruit than if he had consigned to a commission merchant. Nevertheless, this type of cash buyer always finds plenty of growers who are willing to make f. o. b. sales, because of their dissatisfaction with consignment shipping."

Although a large quantity of California fresh fruit was disposed of by the f. o. b. auction sales last year, this plan is meeting with widespread criticism and opposition. The method followed is to advise Eastern buyers of cars which have been started rolling in their direction, giving grade and description of fruit. The best offer telegraphed is accepted and check mailed to grower within 24 hours of the time the sale is made, the car being diverted to buyer while en route.

BUYERS TAKE BIG CHANCES

While possessing the undisputed advantage of giving the grower early cash returns for his fruit, the weakness of this system lies in the fact that purchasers are forced to buy "sight unseen" and take chances on condition of the market when the car arrives. Individual cars of fruit differ materially, even when Government inspected and packed according to accepted grades and standards.

In order to "play safe" the f. o. b. auction buyer usually bids a little under the market, upon which he therefore exerts a bearish influence. His operations moreover are apt to interfere with those of other shippers, including co-operative marketing concerns, because there is no means of knowing when a car is started rolling what its destination will be. In many cases the shipment is diverted to a market to which other shippers have consigned fruit, resulting in an oversupply at that point and demoralization of prices.

Consignment shippers claim that private wire service enables f. o. b. dealers to speculate on the market, making telegraphic diversions of fruit to favorable points and thus overloading cities to which fruit has been consigned in the regular manner, rendering it difficult for commission dealers to obtain fair prices.

While in the National capital Merritt arranged for the introduction in Congress of a bill providing for a special leased wire service open to all producers and connecting all consuming markets, which will make it possible for dealers to co-ordinate their operations and do business on an equal basis. Because Congress is so fully occupied with other matters which Senators and Representatives consider more important, it is considered doubtful if this desired legislation will be enacted this year.

SPECULATORS INJURE MARKET

"The purchase of grapes by speculators operating on the f. o. b. wire was held responsible for the demoralization of many consignment markets," Merritt explained. "The privately owned f. o. b. auctions which operate in California in 1924 should be forced by those who patronize them to sell to bona fide purchasers and not to speculators.

"If f. o. b. auction selling is to be practical and sound from the producer's point of view it must be developed along proper lines and cannot be undertaken by competing companies with private wire service."

The evils of consignment shipping are well known. Some of the unfavorable factors of the other two methods of selling fruit have been presented, in order to afford a comprehensive view of the situation, but without any intention of prejudicing growers against any selling plan. ORCHARD and FARM favors selling farm crops through co-operative marketing organizations.

"I am convinced," declares Merritt, "that the salvation of the California producer lies in the continuation of a contact between the producer and his problems of transportation and distribution. It is the business of the grower to be represented on railroad committees, in conferences on terminal matters, in discussions with Eastern distributors and clear on down the line, in the handling of the grower's commodity.

If the grower does not take this responsibility and interest he cannot reasonably expect satisfactory results. But if through proper representation such as we have tried to give through our Sun Maid committee—these vital matters which affect 100,000 families and a capital investment of $500,000,000—are handled with care, I believe we can find permanent and profitable markets for all the quality products we now produce."

Pruning Without Shears Is Recommended

THE time is at hand when the wise deciduous fruit grower will give attention to the shaping of the trees which he planted during the past winter, and also to those which have had one season's growth in the orchard. Much can be done at this season of the year to aid in developing the proper framework of the trees by the use of what is termed "summer pinching."

This work is best done during April or May, depending upon how early the new shoots develop on the young trees. Growth naturally starts sooner on trees that have become established in the orchard by one season's growth, than on those that have been but recently planted.

One should endeavor to do the pinching when the new growth is from four to six or eight inches long. At this stage the shoots are young and tender, and the undesirable ones can be pinched back an inch or two with the finger nails in order to stop or retard their development. The pinching back causes the energies of the tree to be concentrated in the shoots which are left untouched and from which it is desired to form the framework of the tree. The pinched back shoots are left to shade the trunk and cool it by evaporation from the leaves, thus helping to prevent sunburn.

In case the pinching is delayed until the shoots have become 12 to 18 inches long, it will be necessary to remove from a third to a half of each of the undesirable shoots in order sufficiently to retard them and encourage those that are desired for the scaffold branches. It will be found that this can best be done with a sharp pocket knife. About a month after the first pinching back it usually is advisable to go over the orchard again and pinch back any new undesirable shoots which have come out.

When pinching trees that are making their first season's growth in the orchard, one should select three vigorous shoots well spaced around the trunk, from which to develop the scaffold limbs. Where possible, space these so that the bottom one comes out 8 to 12 inches from the ground, the top one about 24 inches from the ground and the other about half way between the two. That is, the shoots, if possible, should be from 6 to 8 inches apart up and down the trunk, so as to avoid weak debris-catching crotches.

When one of these shoots is weaker than the other two, it often can be improved by tying it into a more vertical position with raffia or a strip of cloth. On the other hand, when one shoot is a shoot that [illegible] ous in proportion to the others [illegible] be weakened by tying it into a spreading position.

The fact should not be over[illegible] that summer pinching during [illegible] season's growth is desirable only [illegible] the trees are making a good, v[illegible] growth. If the trees are slow t[illegible] and make only a weak growth, it [illegible] probably be better to wait until [illegible] to select the framework branches [illegible] same is true in seasons and l[illegible] where twig borers, cutworms, [illegible] hoppers, rabbits or other pe[illegible] abundant, and are likely to injure [illegible] shoots that are left unpinched.

On the other hand, if the tr[illegible] exceptionally vigorous, it [illegible] pinch back the three scaffold [illegible] when they reach the length of [illegible] inches, so as to cause them to [illegible] out and form the secondary [illegible]

The pinching of a tree that [illegible] its second season's growth in [illegible] chard generally is done to en[illegible] one or two shoots (usually tw[illegible] of the three primary scaffol[illegible] the previous winter's pruning [illegible] desirable to have these two [illegible] scaffolds spaced several in[illegible] on the primary scaffold.

Trees seldom are too w[illegible] pinched during the second [illegible] and quite often are so vigoro[illegible] make it highly advisable to pi[illegible] the scaffolds at the proper [illegible] prevent the development of [illegible] ly long whips.—LLOYD AUSTI[illegible] sion of Pomology, Universi[illegible] fornia.

Growing Monantha Vet[illegible]

MONANTHA vetch is gr[illegible] great success in the f[illegible] gions of Humboldt County [illegible] to J. E. French. This fine for[illegible] was introduced by Albert [illegible] Ettersburg, who obtained the se[illegible] the University of California [illegible] ago. French furnishes the [illegible] News the following d[illegible] Monantha vetch.

"It is a many-sided utility cr[illegible] cut green it makes a [illegible] soiling crop than alfalfa. It is [illegible] feed to cattle, sheep and g[illegible] rather too laxative for horses. [illegible] from one to four tons of dry h[illegible] acre. When this crop has a c[illegible] chance and takes hold in earn[illegible] will grow shoulder high and [illegible] that there is hardly room to [illegible] for curing.

"This crop will grow on the [illegible] of soils such as manzanita land [illegible] will not sprout grass seed. Two [illegible] seeding sometimes is necessary to [illegible] duce a satisfactory growth on very [illegible] soil. After it has been grown [illegible] land for three or four years, a [illegible] crop of grain or vegetables can b[illegible] duced.

"For milk goats, Monanth[illegible] cially valuable, fed either [illegible] For best results, the goats shou[illegible] some pasture when the dry h[illegible] Poultry will eat this plant wh[illegible] young and tender. After the [illegible] threshed, the straw makes [illegible] feed and the stubble fine sh[illegible] ture while the seeds may be [illegible] stead of beans for human food."

Weed Seeds in Manu[illegible]

THE way livestock usually [illegible] bined with fruit growing in T[illegible] County is for the horticulturis[illegible] manure from a manure pedd[illegible] bought it from dairymen, poul[illegible] ers or sheep herders. This m[illegible] its faults.

An Exeter orange grower [illegible] bought some sheep manure and [illegible] yard fertilizer. The former [illegible] had stood so long that most of the [illegible] food had been wasted out. Th[illegible] about as much dirt as fertil[illegible] barnyard manure and both w[illegible] with weed seeds, including [illegible] Johnson and Bermuda grass and [illegible] ture vine.

The cost of killing th[illegible] weeds was greater than the [illegible] manure in the first place. Th[illegible] ence has discovered th[illegible] buying manure. He now u[illegible] cal fertilizer and this ye[illegible] organic matter from cow [illegible] make a quick growing [illegible] cover crop, to be plowed in [illegible] provides sufficient hu[illegible]—[illegible] FARMER.

Alfalfa Weevil App[illegible]

THE dreaded alfalfa weev[illegible] California, having [illegible] Sierra County. The p[illegible] ol ey all quarantine [illegible] others to do the same and [illegible] who do not [illegible] can help by submitting [illegible] ste [illegible] straw or other [illegible] infested areas.

SHEEP MEN JOIN ASSOCIA[illegible]

[illegible]

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It's easy now to raise 98% of every hatch, even incubator chicks, by preventing white diarrhea, and to prove it I will send you a liberal sample FREE of my new tablet to be used in drinking water. Simply send name today to Thos. Southard, veteran poultryman at 63 Main St., Kansas City, Mo.

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Corn Belt Farmer Succeeding in Citriculture

Former Iowa Agriculturist Finds Farming in Southern California Profitable

By O. H. BARNHILL

THE middle Western States are chock full of farmers who are tired of the corn-and-hog game and are wondering if they can make a living raising oranges and other subtropical fruits. They are weary of long, cold winters and suffocating summers and look with longing eyes toward the sunny skies of the Golden State.

They have heard that a man can make a living on a ten-acre orchard in California. They also have heard that an orange grove is a rich man's plaything—very nice, if you can afford it.

Here is S. M. Kepner in his 10-acre grove which this year produced more than 7000 boxes of marketable oranges.

Mr. and Mrs. Kepner are enjoying the "sunset of life" in sunny California, and at the same time conducting a profitable enterprise.

This is the attractive home of the younger Kepner, whose wife and small son are shown in the foreground with "Granddad."

Roy Kepner is an enthusiastic tractor user. His machine is equipped with track protector and special side hitch, which holds disk-harrow close to rows.

S. M. Kepner is one Mississippi Valley farmer who decided to come out and see which statement was true. He burned his bridges behind him by selling his fine quarter-section ranch in southwestern Iowa, near Shenandoah, but prudently decided to prepare for the final plunge by farming awhile in Idaho.

For eight years he managed a ranch near Boise devoted to livestock, grain and fruit. The climate was quite an improvement over the one left behind, and proximity to a capital city made life passing pleasant. Two things, however, went against the Hawkeye grain and hastened the time of his departure for the sunny Southland.

One was the distance from markets, which gave railroads and dealers a strangle hold on agricultural producers. The other was the class of people with whom a farmer is forced to do business. During the harvest season a dozen or more men were employed. Working on Sunday hurt Kepner's good Presbyterian conscience, but if the men were allowed to remain idle over the Sabbath some of them got drunk and were unfit for duty until Tuesday, seriously interfering with the harvest operations. The latter was farming in Western Montana at the same time and came south for reasons similar to those which induced Kepner to move.

Twelve years have passed since the former Iowa farmer finally landed in the Southland and bought a ten-acre home and orange grove near San Dimas (Los Angeles County). He found enough to keep him busy most of the time, although the absence of chores morning night and morning was a pleasant contrast to his former agricultural experience.

Orange growing was so entirely different from what he had been used to that there were many things to learn before horticultural operations were entirely successful. "The hardest thing for me to realize," he relates, "was the necessity of necessary to produce a profitable crop of oranges and lemons. It was difficult for an Eastern farmer used to spending $20 to grow a corn crop to bring himself to the point of spending ten times that amount to produce a crop of fruit. Many of them never do this, and they never make a success of the business.

Perhaps, however, it is a high man's game to make a profit for a liberal income in the business, considering the capital invested. Water, fertilizer, spraying, fumigating and cultivation all cost a mint of money, but the returns justify the outlay."

In addition to liberal applications of manure and chemicals, heavy cover crops of vetch and horse beans are grown to maintain soil fertility and friability. Aphis sometimes put a crimp in the latter crop, but seldom, as in Oregon, bother the vetch.

Lime-sulphur spray and gas fumigating keep scale and spiders under control. Joining the California Fruit Growers' Exchange solved the market problem.

A mule team for years was used in cultivating the orchard, but finally was discarded for a tractor. The reason given for the change is an unusual one—the trees became so large there wasn't room for the mules to work sufficiently close to the row.

"You see," explains Kepner, "the limbs of a large tree keep a team so far away that the animals cannot pull an implement sufficiently wide to reach to the trunk of the tree. We first used a wheel tractor, but the spade-like lugs on the wheels packed the soil together, acting something like a sub-surface packer.

"We now use a track layer and like it much better, because of its large bearing surface on the ground and also because it can be turned short around the trees so easily."

Although the income from his ten-acre grove afforded a comfortable living, Kepner afterwards bought another orchard of the same size not far away. His son Roy lives a quarter of a mile away on a third ten-acre grove, and does most of the work on the thirty acres of trees.

The two home orchards are both located on the Foothill boulevard, near the noted Nusbickel - Warren Citrus Nursery, and command inspiring views of the near-by mountains and San Dimas Canyon.

The younger Kepner's ten-acre orange property is valued at $50,000. A similar price was refused for the one without buildings during the period of peak prices, but could not now be sold for more than $40,000, which is considered its real value.

"Why did you not sell for $50,000?" Kepner was asked.

"Because," he explained, "I would have had to pay perhaps $5000 of the proceeds as income tax and half as much more commission to a real estate agent. Furthermore, I don't know where I could have invested the money to better advantage. My son and I can handle the entire thirty acres very nicely and see no reason why we should part with any acreage, even when offered attractive prices."

"The trend of the citrus industry is towards larger holdings," comments Kepner. "Two men in this neighborhood now own over 200 acres each. They were financially able to buy up small groves at just the right time, taking advantage of favorable conditions to enlarge their acreage.

"This may result in the orchards being conducted more efficiently, but smaller growers feel that the big operators are favored in the management of marketing associations and other cooperative organizations."

Kepner's twenty acres of trees yield a gross income of better than $10,000 a year, half of which is used to produce the next crop—$250 an acre expense and $250 an acre profit. As much as $30,000 has been taken from the three ten-acre orchards in a single year.

In addition to oranges and various other products the Kepner ranch has grown some very attractive "peaches"—three attractive daughters, all of whom married successful California business men and happily reside in Los Angeles, Pasadena and Eureka.

Living in a spacious mission style residence, in a location coveted by more persons, perhaps, than any other in the world, the former Iowa farmer and his faithful wife are spending their declining years in peace and comfort. Much of their time is devoted to church work, reading and visiting with friends, amid surroundings which approach the ideal. No wonder many other corn-belt farmers contemplate following the Kepner example!

Farm Freaks & Fragments

A "freak" is the leek shown at right — not the kind that calls for a plumber's services, but a giant vegetable, five feet high, grown in England (International Newsreel photo).

At left is a farmer-owned 3 h. p. engine "hitched" to a concrete mixer. More and more farmers are doing their own cement work, and more and more cement is being used in farm construction; hence the enlarged field of usefulness for the busy, dependable little power plant.

Not a garden of sweet-scented flowers, but a far more odoriferous planting. This is a "fragment" of a great onion field in the San Joaquin Delta district.

Now we jump a few hundred miles south to the Imperial Valley, where the stock farmers use "settling basins" like the above to clarify the drinking water for their animals. "Silt precipitator," we presume the scientist would call it.

How many pies in a pie-plant? This one ought to supply a large restaurant. Oh, yes, to be sure it was grown in California, but in order to avoid controversy we are not going to tell exactly where.

Bet you've never eaten of this fruit. Yet it is very common in California and is highly esteemed by some epicures. It is the fruit of the cactus plant—in this case the spineless variety.

ORCHARD *and* FARM

APRIL 27, 1924

"Doctor Duck," Genuine Quack Cures College Girl

Co-ed Farmer Finds Thousand Ducklings Source of Pleasure and Profit

By O. H. BARNHILL

A FEW years ago ORCHARD and FARM printed a story of an enterprising Oregon farmer who, in order to reduce the overhead, operated two big tractors day and night. His sleep was undisturbed by the steady "pop, pop" of powerful motors, but whenever this noise stopped he immediately awoke.

A similar experience is related by Miss Margaretta Bashore, Santa Monica's "Lady with a Thousand Ducks," who declares the anvil chorus of quacks does not interfere in the least with her nocturnal slumbers, but when the birds suddenly become quiet she instantly awakes, sensing danger to her feathered pets.

"Why not raise Muscovies, which are practically quackless, or Mallards, which have a gamey flavor and command premium prices?" the youthful poultrywoman was asked.

"Because the Muscovy duck is too big and coarse for the market and it takes too long to grow a wild duck to profitable size," she explained. "My Pekins at 12 weeks of age weigh five pounds, which just suits the average consumer."

BIRDS BRING GOOD PRICES

When it is known that these ducklings, less than three months old, sell for $1.25 to $1.50 each, wholesale, it will be seen there is real money in duck culture.

The 1400 birds which Miss Bashore is raising will net, it is estimated, enough to pay for the buildings and equipment—$500—and $300 to $400 over. The work was begun last November and will end in April. But why end such a profitable enterprise?

"I'm not quitting the poultry game," explains the duck lady, "but just taking a needed vacation, for the work is confining and sometimes rather strenuous. Besides, I want to visit other duck plants and learn more about the business, especially in regard to dressing stock for market.

"Next September I expect to resume operations on a larger scale. It is my intention to raise 5000 ducklings next season. Market? Why, a single dealer has agreed to take all of them, at attractive prices. He is having no trouble of disposing of the 1400 I am growing this year. The demand for good roast duck material seems to be unlimited. You see, very few ducks are produced in Southern California."

BEST TIME TO SELL DUCKS

It was further explained that the summer season is a poor time to sell ducks, owing to the market being supplied with young chickens in the first part of the season and to hot weather later on. Christmas is considered the best time of the year to sell ducks for meat. Inability to buy day-old ducklings early enough in the season is the reason why the first Santa Monica crop was not ready for the holiday trade last December.

The production of hatching eggs and breeding stock, and egg incubation are lines of the duck industry in which Miss Bashore has not yet engaged, as she preferred to start with duckling raising and master the business by learning one thing at a time. A beginner is kept middling busy feeding and caring for a thousand lively young birds.

How do you get them started? Are they subject to disease? What kind of feed do they need? What sort of yards and buildings? Is a pond of water absolutely necessary?

Several years ago the family physician gave Miss Margaretta Bashore just six months to live. This depressing dictum has been forgotten, however, as the result of her successful application of the nature cure under the direction of A. Duck, M.D.

"One question at a time, please!" protested Miss Bashore. "My method of brooding ducklings is similar to that employed in raising chicks, only much simpler, as they are not nearly so subject to disease. The downy little things first are placed in a room where the heat is distributed with a circular metal hover, same as used for chicks.

"At the end of a week the ducklings are moved to an adjoining room, or inside pen, this being repeated until they are five weeks old, when they are turned outdoors. Moving is continued each week, the birds progressing from pen to pen until they attain marketable size.

"Ducks won't stand crowding. The pens should be 15 feet wide and at least twice as long to hold 100 birds, which is the best number to handle in one unit. They are very nervous and easily frightened. In a stampede they are apt to pile up and fall over each other. A young duck on its back is about as helpless as a hog on ice and will sometimes die unless placed right side up. Of course the pens for the youngest ducks need be only half the size given."

Better than 95 per cent of the last lots are being raised, which speaks well both for duck hardiness and the good care Miss Bashore's birds received. Very few ducklings have been lost.

The young stock first is fed a ration consisting of four parts bran, one of cornmeal and one-third each of beef scrap, alfalfa meal and low grade flour. The mixture is moistened just enough to make it stick together when compressed in the hand. Sloppy feed seems to cause sore eyes and general debility.

At first it was thought necessary to give green feed, which was supplied in the form of cull lettuce. This, however, gave the birds diarrhea and was discontinued. Being able to dispense with green feed is considered a great point in favor of duck raising. Freedom from insect pests, roup, chicken pox and similar troubles, which sorely try the soul of the hen man, are other important advantages on the side of quacking fowls.

During the last few weeks of the feeding period the duck ration is changed to the following consistency: Bran and cornmeal, each one part; beef scrap and alfalfa meal, one-half part each; one-fourth part flour—just enough to make the mass sticky. The feed is placed in shallow boxes a foot wide, and is given morning, noon and night.

LITTLE EQUIPMENT NEEDED

The brooder house is boarded up on all sides, but larger birds are protected by low sheds, having the south side entirely open. Partitions are extended by wire netting fences four feet high, forming the pens with burlap cloth on the south and west sides of the outside fences, to keep off the cold sea breezes. Fences for the younger ducklings need be only a foot high.

"A strange thing about ducks," relates this poultry enthusiast, "is that they do most of their feeding at night. During the day they sit around and doze a good deal, but as night comes on, they show great activity, quacking incessantly and consuming by far the largest ration of feed given during the twenty-four hours.

"And yet, they do not seem to like darkness. They always are quieter on moonlight nights. I find that a large lantern, placed in front of the shed and kept lighted at night, is beneficial. An equipment of dim electric lights might pay."

To deprive a duck of a pond in which to swim seems, at first thought, akin to keeping a fish out of water. Nevertheless, the Santa Monica lady maintains that a duck pond not only is unnecessary for the commercial duck grower, but a positive detriment.

DUCK POND UNNECESSARY

"It is difficult to keep a duck pond clean and sanitary," she explains. "A running stream with rock bottom might be advantageous. Tests, however, prove that ducklings do not develop as rapidly when they spend much of their time and strength paddling around in the water as when they lie around on the dry ground, growing fat and lazy. If they do not have water in which to swim they never feel the omission. It probably would be possible to develop a strain of ducks with webless feet."

Metal troughs, with automatic regulators, supply an abundance of pure water. How best to avoid the mud made by water splashed out of the troughs is yet an unsolved problem. The sheds and yards are kept clean by frequent scrapings. The manure is given to a neighbor in exchange for feed, but next season is to be sold as a regular by-product.

THE PERSONAL EQUATION

A garden rake is used for mixing the feed in a wooden trough, set conveniently under a water tap. The material then is shoveled into a wheelbarrow, taken to the pens and thrown into the troughs. A larger feed shed is to be built next fall and material purchased by the ton—later on, by the car load. Accurate records have been kept of the amount and cost of each article used, and at the end of the season exact production costs will be figured.

Yes, patient reader, the most interesting part of this little story—a description of the duck lady—has been left for the last. If you have visualized a buxom, middle-aged Amazon, you will have to reverse your mental image, since Miss Margaretta is an attractive co-ed of twenty summers, with a happy, hopeful disposition, unmarred by many winters of suffering with what physicians pronounced an incurable disease.

The Bashore family—the father is an attorney—came to California in the faint hope of improving the elder daughter's health. The doctor gave her six months to live. They located in Topango Canyon, where the salt sea breezes meet and mingle with the dry winds of the San Fernando Valley.

Then began a brave fight for that priceless gem, health, aided by horseback riding and other forms of outdoor exercise. A reprieve was granted by the pessimistic physician, the six months sentence now having been extended indefinitely, while the "condemned" girl constantly is commended for the apparently perfect health she has regained.

DUCKS—DISGUISED BLESSING

A business college course was finished with difficulty, emphasizing the necessity of an outdoor occupation. Instead of regarding this as a hardship, Miss Bashore considers it a blessing in disguise, because it leads her into God's great out-of-doors, which she dearly loves, and is resulting in building up an independent, profitable business. [illegible] always had a liking for poultry, h[illegible] had successful experience with chickens before deciding to specialize in ducks as the best-paying birds to produce.

"But has it not meant sacrifice?"

"Indeed it has," answered Mrs. Bashore. "Margaretta likes to wear pretty clothes and have a good time as well as any girl. Her college chums keep t[illegible]ing her with all kinds of parties and excursions, but she turns a deaf ear to most of them, declaring she is going to stay with her ducks until she has made the biggest possible success."

"I'm going to have my good time next summer," asserts the [illegible] daughter. "The best part of my vacation will be the thought that I [illegible] for it with my own money and [illegible] enough left to go into the duck business again."

Poultry Diseases

THE question often is ask[illegible] diseases play such an important part in the poultry industry in California. It always has been tru[illegible] the size of the disease probl[illegible] the accompanying difficulties are proportionate to the extent of the development of chicken farming.

So long as the industry continues to grow and develop, so long wi[illegible] increase and add to the worry of California poultrymen.

If there are more dis[illegible] section of California than anot[illegible] is not necessarily due to climate [illegible] or any other similar cause [illegible] to the development of the [illegible] that section of the State—[illegible]

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
APRIL 27, 1924

Citrus Growers, Read About Sicily and Cheer Up!

California Visitor Writes Entertainingly of Conditions in Italy's Great Lemon District—They Have Their Troubles, Too, Only More So!

By W. V. CRUESS
Associate Professor of Fruit Products, University of California, Berkeley

Written especially for ORCHARD and FARM

NOT only is Sicily justly famed throughout the world for beautiful scenery and glorious climate, but she also enjoys the distinction of being the world's greatest producer of lemons and lemon by-products.

At one time Sicily supplied practically all of the world's requirements for lemon oil and citrate of lime (the basis for citric acid). But while she is still the most important producer of lemon by-products she now feels keenly the competition of California in this formerly undisputed field.

W. V. CRUESS

Historically Sicily is interesting. It possesses many ruins of ancient Greek and Roman civilization, some of these dating back to about 800 B. C. The island has been inhabited since the beginning of historical time and has seen many civilizations rise and crumble.

The people are quiet, fairly industrious and peaceable. The principal ambition of each and every one seems to be to save enough money and be lucky enough to come to California in Sicily's next annual immigration quota.

Most of the people are tragically poor; particularly in the large cities. The slums of New York would seem like Paradise to most Sicilians. Compared to their wages of 10 to 60 cents (American) per day, our American wages would appear princely salaries.

The central portion of the island is very mountainous and is devoted to other industries than lemon growing. Citrus fruits are grown in a narrow strip between the mountains and the sea, the most important districts being those in the vicinity of Messina at the eastern end of the island; around Palermo at the western end; Syracuse on the [illegible] Barcelona, between Messina and [illegible] Palermo, and in [illegible] Trin on the mainland of Italy.

In addition to lemons, Sicily exports a large amount of [illegible] sumac for tanning, almonds, [illegible] root, fish and silk. She is also a tremendous producer of children and [illegible] and undoubtedly could do a thriving export business in both commodities.

LEMON CULTURE IN SICILY

[illegible] respect the history of lemon [illegible] in Sicily resembles that of grape [illegible] in California. Grapes once [illegible] out in California by the [illegible] the Sicilian lemon industry [illegible] in 1862 by gummosis [illegible]

[illegible] the future was hopeless [illegible] the bitter orange re[illegible] diseases and steps were [illegible] to grow [illegible] stock from seeds [illegible] seedlings to the marketable [illegible]

[illegible] the bitter orange root saved [illegible] the American [illegible] While Professor [illegible] the [illegible] experi[illegible] and Verdri[illegible] [illegible] perhaps [illegible] much

greater distance from the ground in most cases than in California. According to A. Bennett of Messina, the trees are planted from 11½ to 15 feet apart on terraces and at 16 to 20 feet on level ground. At maturity the branches of the trees meet and completely cover the ground, a condition that renders fumigation very difficult or impossible. Consequently insect pests are not as effectively controlled as in California.

The amount of level land available in the citrus area is very limited and, therefore, there is a great deal of "vertical" lemon culture; that is, terracing and planting of steep hillsides near the sea. Often the terraces extend almost to the water's edge—a very picturesque sight indeed. The walls of the embankments between terraces are of stone, as neatly and strongly built as the walls of the peasant houses. A tremendous amount of labor must have been expended in their construction.

Cultivation of the soil is most thorough and usually is accomplished by a husky Sicilian with a "man-size" hoe, known as a "zappa." In the spring the soil is turned over to a depth of 8 to 9 inches into little hillocks and left exposed to the air for about a month. It is then worked again and a shallow circular pit is made around each tree for the irrigation water.

These basins are connected by small ditches to the irrigation ditch or flume—often a work of art, made of stone and concrete above the surface of the ground. The ground usually is cultivated by hoe after each cultivation. By irrigating trees individually water is saved—a very important object in Sicily.

SOURCES OF WATER

Water for irrigation is stored in reservoirs which are in some cases filled from mountain streams or springs, but more often from a well by means of a mulepower pump of primitive design. The pump (or "noria") consists of an endless chain of small buckets or stone [illegible] attached to a large wheel operated by a sweep and mulepower.

Mr. [illegible] has to work fairly continuously [illegible] irrigations in order to fill the reservoir. Some of the larger [illegible] possess pumps operated by [illegible], undoubtedly the number of electric motors will increase greatly as hydroelectric projects now under way or contemplated are completed. Italy is rapidly developing her water power sites throughout the kingdom. The building of large storage reservoirs in the mountains also is needed and will probably accompany hydro-electric development.

Irrigations vary in number according to the character of the soil, the available water supply and other factors—but ordinarily are given once each two to four weeks during the summer. In addition to irrigation, heavy soil often requires the construction of drainage ditches to prevent stagnation of water about the roots of the trees with consequent danger of root rot.

According to one authority about 4200 cubic meters of water is required per hectare per year. (A meter is about 3.25 feet and a hectare is about 2.5 acres or 10,000 square meters.) This corresponds according to my calculations to about 17 acre inches of water per year. Rainfall is fairly abundant during the winter months, but the summers are very hot and dry.

Above is shown a typical road scene in Sicily. Oxen are used extensively for hauling farm products. The orchards are hand cultivated with the hoe.

Left — The sponge process of extracting lemon oil.

This buxom lass is removing pulp from halved lemons, using a heavy metal spoon.

SICILIAN PLANT DISEASES

Fertilizing is necessary, sheep manure and barnyard manure being the most common materials used. These are supplemented by the addition of superphosphate, ammonium sulphate, nitrate of soda and potash salts. These are added with the manure, applied to the trees individually. A typical dose per tree is 175 pounds of manure and 5 pounds of superphosphate. The manure is applied once each three years, the mineral fertilizers more frequently.

A word or two on the two most important plant diseases of the lemon tree in Sicily may be of interest. Professor Fawcett of Riverside has studied these diseases and is a far better authority upon them than the writer. I do not have his report on them at hand and shall therefore give the information obtained from Mr. Bennett, a well known chemist and scientist of Messina, and from Professor Savastano of Acireale.

The root rot (in Italian "marciume radicale") according to Bennett is the more deadly of the two. The exact cause of the disease is not definitely known; the general belief is that it is caused by poor soil aeration and soil drainage.

It usually occurs on heavy, poorly-drained soils and usually can be avoided or cured—if not too far developed—by properly draining the soil and by deep cultivation.

It is believed the microorganisms found in the decayed roots may be secondary in nature and not the real cause of the disease. The affected tree withers and dies and when it is dug up, the roots give forth a peculiarly offensive odor. Do these observations check with the experience of California growers?

Gummosis (in Sicilian dialect, "la cagna") attacks the bark of the branches and trunk and may extend to the roots. There is a copious exudation of gummy matter, said to be produced by a specific bacillus. The disease is carried from tree to tree and from one part of the tree to another by water. Any condition that lowers the vigor of the tree predisposes it to infection. The treatment is that given pear blight. Affected portions of the tree are cut away and the wounds cauterized by fire or treated with a lime wash. Probably more active disinfectants than lime would be better. It is stated if the work is properly and carefully done, and eternal vigilance exercised, it is possible to save the tree provided the disease has not progressed too far.

Insect pests, as would be expected, are numerous and active. Black scale, cottony cushion scale, red scale and white scale (known locally as "cocciniglia rossa" and "cocciniglia bianca") according to Mr. Bennett, are the most important pests. The black scale is accompanied by sooty mold fungus that greatly mars the appearance of the fruit and impairs the quality of essential oil made therefrom. The cottony cushion scale may destroy the fruit in severe infestations.

Spraying with an emulsion of soap and paraffin oil is said to control the cottony scale. Against the other scales, spraying with lime sulfur solution has given excellent results, according to Professor Savastano. The writer saw orchards sprayed according to Dr. Savastano's directions and to all appearances the trees and the fruit were free of scale. There was a tremendous difference between sprayed and unsprayed trees.

The spray consists of five parts of concentrated lime sulfur solution of 1.25 specific gravity to 95 parts of water. As stated elsewhere, fumigation is not generally practiced, probably because of difficulty of covering the trees with fumigation tents under the present close system of planting.

THE VERDELLI LEMONS

Sicilians vociferously contend their citrus fruits are free from fruit fly and the United States Federal Quarantine against their fruit is a most serious and sad mistake, a ruling, according to them "made at the request of the California fruit growers, whose only ambition is to deprive the poor Sicilians of their legitimate markets." It seems that "some professor" of the University of California is "in dutch," also, with the Sicilian shippers and growers for aiding and abetting our quarantine service in their "nefarious" embargo.

This professor was about to visit the island at the time I returned to the mainland. I am interested to know what reception he was given on his visit.

Allow me *(Continued on Page [illegible])*

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FRIENDLY PHILOSOPHY

By THE EDITOR

EMERGENCY BRINGS CO-OPERATION

Nothing serves to bring us together in a common cause so much as a great emergency like the foot-and-mouth disease epidemic. Personal opinion is forgotten; financial sacrifice endured stoically; factional differences buried. Private enterprise is diverted to the public cause; all organizations work harmoniously towards a common end.

One outstanding example of such public service is the action of a great milling concern, the Sperry Flour Company, in voluntarily withdrawing from the field all of its representatives dealing directly with the farmers. These personal service men have been diverted to the use of State and Federal authorities, wherever practicable, to assist in stamping out the contagion.

FARM ORGANIZATIONS ALL HELP

Agricultural organizations of all kinds, too, have given their wholehearted support to overworked State, county and Federal authorities. Officials of the California Dairy Council, for example, have been giving practically their entire time to the work. Farm bureaus and the marketing associations have been "on the job" day and night. And the public is doing its part—enduring inconvenience uncomplainingly.

Some, perhaps, feel the action of the authorities is too drastic in many instances. They cannot see the necessity of destroying an entire herd of animals when only a few are infected. But in such an emergency we can only accept the judgment of scientists who have dealt with the disease for many years and who know of its ravages in Europe.

CRITICIZES HOME ECONOMICS COURSES

"Of all the tomfoolery the educators are putting over on us, the so-called 'home economics courses' are the worst," is the surprising outburst of a disgruntled subscriber whose name we withhold. Such a narrow, short-sighted attitude is made all the more disconcerting by his additional remarks: "My wife and her mother learned to sew and cook without going to school and we've always lived pretty well. Why should I pay out hard-earned dollars to send my daughter to college where they will fill her head with a lot of nonsense about 'calories' and 'vitamines,' which won't help her any in feeding a hungry family? Women hate housework anyway and going to school only makes them hate it all the more."

THE FALLACY OF FALSE LOGIC

Ah, my friend, there we put our finger on the weak point in your argument. "Women hate housework anyway," you say. But do ALL women or only those with whom you are acquainted?

We know women who make an art, a science, of housework, and many of them are college women who see in home-making an opportunity to apply brains and business judgment; to express their artistic impulses.

They want labor-saving household equipment, to be sure—not because they are lazy but for the same reason you demand it for the farm. Such women look upon dish washing, cleaning and the less interesting part of their work just as the farmer looks upon his chores or the business man his daily routine—merely as the means to an end.

To your wife, perhaps, home-making stands only for that which is disagreeable. To the woman of larger interests, who has the co-operation of her husband in lightening her duties, it represents opportunity for accomplishment.

No, your daughter will not be a less successful mother and home-maker by reason of having attended the university.

WHAT'S NEW? Keeping Abreast of Agricultural Progress

Pullets Cost 54 Cents Each

FINANCIAL records covering 116,000 chicks raised on 51 California farms during the past year indicate an average net cost per three-months-old pullets of 54 cents, according to R. B. Easson, Extension Service poultry specialist. The different cost items were as follows:

One thousand baby chicks, $119; feed, $122; labor, $65; depreciation of plant and interest on investment, $27; fuel, $16; litter, $3; total, $352. Receipts from sale of cockerels, $108; net cost of 448 pullets, $244, or 54 cents each.

Guilford in Big Deal

WHAT will be the world's largest prune orchard is being developed by W. S. Guilford, associate editor of ORCHARD and FARM, on the Butte City Ranch, Glen County. Recently this property has been enlarged by adding the Parker Bend Farms, A. M. Mull and Peterson Island Orchards, and a company formed for intensive development.

The consolidated property is valued at $2,000,000 and contains four square miles of fertile bottom land. A large acreage already is planted to prunes, which are to be the main crop.

Hodgson in New Position

AFTER six and one-half years of successful service as farm adviser of Los Angeles County, Robert W. Hodgson, a regular contributor to ORCHARD and FARM, has been transferred to the division of sub-tropical horticulture, California College of Agriculture. He will begin his new work July 1, in connection with the summer course in sub-tropical horticulture to be given at the Riverside Citrus Experiment Station, June 28 to August 9. Previous to his farm adviser work, Hodgson was assistant professor of citriculture, University of California, which has issued bulletins on this subject, written by Hodgson.

Save Grain Weighing Charges

CALIFORNIA grain growers are charged $10 to $12 for weighing a carload of grain at most terminal markets, a price which the State Department of Agriculture asserts is exorbitant and much higher than Oregon and Washington weighing fees.

"A State weighing system for agricultural products at terminal markets could be established by concerted action on the part of California farmers," Director Hecke points out. "If this were done it would result in an annual saving of $15,000 to $20,000 to the grain growers of Sacramento, Sutter, Yuba and Yolo counties alone."

Fix Standard Grape Grades

STANDARD grades for both juice and table grapes have been fixed by the State Department of Agriculture. These grades were recommended by H. W. Samson, Federal fruit specialist, and W. F. Allewelt of the California Bureau of Fruit and Vegetable Standardization.

The acceptance of these grades—a description of which may be obtained from the Department at Sacramento—is optional with growers and dealers, but it is believed that a large share of this year's crop will be graded according to the specifications named.

Prune Men Want Changes

THE California Prune and Apricot Growers' Association is considering the subdivision of its larger voting districts and the election of one-third of the voting board annually, instead of once in seven years. A committee, of which J. R. Welch of San Jose is chairman, is engaged in putting through these improvements, which at last report had received the endorsement of 4100 members and the disapproval of only 111.

The proposed changes are in line with the present policy of making the prune growers more truly representative of the rank and file of its membership and for this reason friends of true co-operation hope the changes will be adopted.

Grain Growers Save $80,000

CALIFORNIA grain growers last year were saved $80,000 in insurance charges by using the Farm Bureau Exchange, according to Secretary Alex Johnson. Eight hundred fifty farmers sold through the exchange 130,000 tons of grain, which was 15 per cent of the entire crop produced in the State. Sixty per cent of the sale price was paid on delivery, 24 per cent the first of the year and the remainder a few months later.

"If 50 per cent of the 1924 grain acreage is signed up with the exchange and 80 per cent of the crop grown on the rest of the land sold within three months after harvest, we can dominate the market the rest of the year," claims T. E. Morgan, manager.

Put Fewer Eggs in Storage

CONSERVATISM should govern the placing of eggs in storage this season, in the opinion of Cornele G. Ross, president of the Poultry Producers of Southern California, who states that dealers lost $15,000,000 on last season's pack. This is attributed to two causes:

Government under-estimating of the egg crop and unusually heavy consumption in March. The latter led dealers to overestimate the demand for eggs later in the season, resulting in too many being placed in storage. Another cause of storage losses was largely increased production without a corresponding increase in consumption.

The New York Produce News estimates that the 1924 egg crop will be 20 per cent greater than last year's.

Dairymen Buy Co-operatively

HALF the feed used in the Tillamook (Oregon) dairy district is bought co-operatively by the same association that makes and markets the famous Tillamook cheese. Last year this organization paid out $80,000 for hay and $175,000 for mill feed. The feed business is handled in a big warehouse, where much of the material is ground, chopped and otherwise processed.

Carl Haberlach, the enterprising manager of the association, was instrumental in securing a freight rate on feed shipped from points west of the Mississippi to Tillamook of only $1 more than the terminal rate to Portland. With the assistance of the business men of Tillamook and the Columbia Basin Hay Growers, the rate Astoria enjoys has been secured. The new tariff, which went into effect April 1, lowers the Tillamook rate on hay $2.80 a ton; corn, $3; oats and barley, $3.30.

Texas Grows Magnolias

THE Magnolia fig is proving a great money maker in Galveston County, Texas. A single orchard contains 1000 acres and the harvest season lasts from the middle of July until frost—four months.

Harvey C. Stiles, consulting State horticulturist, says the astonishing stories of profits made in growing this crop are true and with the improved methods which are constantly being instituted even larger profits are possible. The gross income from an orchard three to five years old is said to average $350 per acre; older groves, $500 to $7[illegible].

The Magnolia is a white fig which, when killed to the ground by freezing, will throw up shoots and bear a profitable crop the same year, according to "The Earth." Although a few figs are sold fresh most of the crop is canned. Growers have formed a co-operative marketing organization.

Trying New Egg Sales Plan

THE Poultry Producers of Southern California, in an effort to reduce middleman expense, is preparing to transport eggs directly from producer to consumer. Five Ford trucks are being remodeled and painted appropriately to take care of the new department.

Only first-grade eggs in cartons at first will be handled, but other kinds may be added, if there is sufficient demand. Each truck will cover a specified section of Los Angeles and will call on customers once or twice a week. In the fall, when sealed eggs are to be sold, preceded by an advertising campaign.

"We believe a delivery of our dependable eggs direct from producer to consumer will result in a growing demand for our goods and thus help our trade with retail dealers, especially in the fall, when it is difficult to obtain a reliable pack of eggs from present sources of supply," states Cornele G. Ross, president of the producers, in explaining why the new move is being made.

Ben Connadoolit Says

Poor Old Ben! His only virtue is the lesson he teaches by his bad example. Undoubtedly most of our readers know Ben or one of his worthless kin. They never last long in the country, but the cities are full of them!

WELL, I didn't make no money last year and couldn't borry any more t' put in field crops this year, so I bin workin' out as a farm hand th' past two months. It sure has been a tough experience. I must'a lost all to four or five pounds!

The first place I worked was at Old Man Brown's ranch. But I only stuck three days because th' grub wasn't no better than I bin accustomed to at home. I certainly expected Brown t' set a better table!

It tuk me about a week t' get over th' effects o' that job. Then I hired out with my team t' do some hauling fer Henry Walker. But my horses was so run down, they couldn't stand th' heavy feedin' o' grain they got at his place, an' they both give out th' second day. He said I kin go on an' work by myself, diggin' a ditch, but I wasn't in tradnin' fer sech back breakin' labor, so I had no choice but t' quit!

Th' next thing I undertuk was t' saw some wood fer my neighbor, Amos Jensen. It took me two days t' get my old saw rig in runnin order an' he wouldn't pay me fer that time. This made me pretty sore, but I started in on th' woodpile anyway. Th first afternoon the engine balked an' while I was tryin' t' crank it, I sprained my wrist. What with buying repairs fer th' saw an' th doctor bill fer my wrist, this job actuly cost me $12.98—not mention th' time I lost.

So it has be'n with everything I've undertuk! Th' longest any job lasted was ten days. I always thought th' feller who worked fer wages was better off'n th man that tried t' farm on his own hook. But after seein fer myself the caliber of th' men that's hirin help, I've concluded all they are interested in is gettin' how much work they kin get fer th' money they pay out. I never got no [illegible] of em!—BEN CONNADOOLIT

Now the Suburban Farm Era—New Possibilities and Problems

Movement Towards Intensive Development Should Be Encouraged—Common Mistakes and Pitfalls

By J. ELIOT COIT

Contributing Editor of ORCHARD and FARM

[illegible] ALL the signs of the times, California is just entering a period of extensive development of suburban ranches.

There is an increasing demand for five to twenty acre places, twenty to forty miles out from the cities.

This movement is being [illegible] by extension of good roads and the automobile. It is being participated in chiefly by city people who wish to retain some business connection in the city and at the same time provide their families, and especially the children, with the advantages of country life.

DR. J. ELIOT COIT

It is the duty of every citizen to encourage this movement because it cannot fail to be highly beneficial to society, which is [illegible] tenning to seed under strictly ur[ban] conditions.

[No]t every city man, however, is [f]itted to make a success in agricul[ture]. [A]s many have developed a wrong [co]ncept. Agriculture is not a preda[tory] profit taking enterprise and must [be] approached in an entirely different [way]. There is a limit to which a home ranch may be "sponged" and still show a profit.

[For] example, Mr. A buys a 10-acre [orange] grove in the suburbs, where [taxes] and other expenses are high. He [hires] a man to do all the work, in[clud]ing the care of lawn, garden and [flowers]. He spends part of each sum[mer] with his family in the home. They [con]sume a lot of fruit and vegetables, [besi]des giving away a quantity to visit[ing] friends from the city. The total [expe]nses for a year run high and when [the] check for oranges comes from the [associ]ation and does not exceed the ex[pen]se, Mr. A is quick to conclude the [ranc]h is not profitable.

[It] might be profitable if it were cred[ited] with everything that was taken [fro]m it, and a fair division made of [the] expenses. It is not the fault of [the] orange trees that the house was [occ]upied only three months. The ranch [sho]uld be credited with twelve months' [rent] anyway. It costs money and is [wor]th it to be a "Gentleman Farmer."

[But] there are two classes of farmer: [gen]tlemen farmers and "dirt farmers." [Mr.] B moves out from the city and de[cides] to be a real dirt farmer. He [buys] a 40 acre grove which is a better [eco]nomic unit. He does some of the [wor]k himself and takes a great inter[est]. He is obsessed with the idea that [nothing] but the best will do. He buys [the] most expensive tractor and tillage [too]ls. He is waited upon by various [and] sundry agents and loads up with [many] commodities and devices calcu[lated] to appeal to his type.

[He] builds an ornamental stone wall, plants rose hedges, constructs an elaborate entrance, and has everything done to the trees which interested persons suggest may be of benefit. He drives hard bargains for everything with the thought of being economical and making money.

His trees improve in yield but stagger under an expense bill which simply cannot be met by the returns. Mr. B is not in the orange business as much as he is in the real estate business. He can't make money growing oranges but he can perhaps "get by" if his location is right, by selling out to some wealthy Easterner who may take a fancy to his place.

A third type too often met is Mr. C, who tired of running a restaurant in the city. He longed to get back to nature and dig in the soil. Knowing what he paid for produce in the city he thought there must be a profit in production. He bought a five-acre place, built a garage, moved his family into it and undertook, with the help of the boys, to do all the work. He planted some of every kind of fruit and berry in the nursery catalog. "Don't put all your eggs in one basket," was his motto.

He did not realize that the production of each kind of fruit is a specialty and requires a different schedule of spraying, dusting and fumigating to control the pests. He needed information and experience along a hundred lines at once and even with repeated visits of the farm adviser soon was lost in a maze of horticultural technique.

Most of his product was second grade and difficult to sell in small quantities. He might have named his place the "Rancho Succotash"! The situation was critical until the wife's poultry operations were enlarged to occupy the time of the whole family.

But I know a type represented by Mr. D. who after a life in an Eastern department store came to California with his family. He bought a residence in a small town in the orange district. He did not know anything about the orange business, but he had common sense and the ability to distinguish between good and bad advice. After watching his chances for six months he bought three groves, totaling about 50 acres, all within five miles of his home. He did not pay all cash, but reserved part of his money to tide him over a hard year.

He contracted with caretakers in the neighborhood to do the plowing and cultivating and sees to it that the work is done right. He does the irrigating himself. He uses essential fertilizers generally. He spends money freely, but every expenditure is calculated to increase the production of the trees. His motto is, "The more I spend the better, when every dollar comes back with increase."

He runs his orange grove as he did his store and does not mix it up with family affairs or the real estate business. His groves have responded wonderfully to good care and close attention. Production is increased. After three years the groves show a very satisfactory profit on the total money invested and their resale value has increased one-half. He is a success.

One of the greatest troubles with the citrus business as it is run today is lack of reserve capital to tide over a hard year. One grower said to me that he did not intend to buy any manure or fumigate this year because the returns from the fruit did not permit of such expense. He might as well put up a sign in his hen house to the effect that there would be no more food furnished the hens until they had laid enough eggs to buy another sack of feed.

Fruit growing is not an annual turnover like potato growing. Books must be kept for at least five-year periods and reserves built up accordingly. Trees will not thrive on the "streak of fat, streak of lean" policy, but need good feeding, care and attention every year regardless of frosts, markets and other variable factors.

Are Average Farmers Really Efficient?

ARE farmers themselves largely to blame, in most cases, for not making their work profitable? [illegible] Merrill of the Extension Service [thinks] so and can give some convincing [facts] in support of this opinion. He is [now he]lping Kings County ranchers [with their] poultry and fruit problems, [has he]lped organize cow testing work [in Tulare] County and has assisted in [dissemin]ating the gospel of good farm[ing in] various other parts of the State.

"It is a common experience," relates [Merrill], "for Extension Service work[ers to] be met with this objection: 'Why [should] we learn how to produce more [farm pro]ducts when we can't sell what [we have] at profitable prices?'

"The farmer who talks that way for[gets tha]t Extension workers are not [trying] to increase the total produc[tion of f]arm crops and animals, but to [increase] the yield per unit, improve qual[ity of o]utput and lower operating costs. [In other] words, we are working for [greater] efficiency in farming which is [bound] to increase profits.

"[It is] easy to say that 'farming does[n't pay]' and that is true of many agri[cultural] operations today. The main [trouble], however, is not with prices and [markets], largely beyond the farm[er's control], but with the low average [of] efficiency. It is possible even [at present] low prices to make money [in farming], which is proved by the fact [that it is] being done, in many in[stances]. Of course the percentage of [illegible] at present is not [illegible] they are doing demon[strates that] profitable farming is prac[ticable].

[illegible] known Extension [illegible] superior [illegible] serve as [illegible] tion [illegible] by [illegible] ful [illegible] diffi[illegible] farm [illegible] and [illegible]

enough to tell farmers which methods have been found most successful and give sufficient facts and reasons in support of statements made. About the only practical way of introducing improved methods is to convince one farmer in each community. Seeing the success which results from following the method advised, neighbors will follow suit and thus the practice becomes general.

"Formerly roadside signs were used to designate farms where improved practices were being followed, such as, 'This orchard pruned according to method recommended by the Extension Service.' This practice had to be discontinued because farmers failed to continue following the method advised, bringing the latter into disrepute.

"When a farmer, for example, agreed to build a poultry house according to plans furnished and was given a sign stating the structure had been erected in this manner, in most cases numerous changes in the specifications were made, to suit some whim or fancy of the builder. These alterations made the difference between a good and bad poultry house and caused the owner and his neighbors to lose confidence in the Extension Service, although the trouble lay in the farmer failing to follow the plans furnished.

"Such experiences help explain why the average farmer is inefficient and how difficult it is to introduce improved methods."

NO ABSENTEE LANDLORD PROBLEM

Absentee landlordism is not an important factor in the agricultural situation in most parts of the United States, says the United States Department of Agriculture. It estimates that in 1920 not more than 10 per cent of rented farms were owned by absentee landlords. There had been little change in this regard in the preceding [illegible] years.

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Frost as a Guide to Planting

By GEO. P. WELDON
Contributing Editor

[Editor's Note—We have just passed through the usual hazardous period of spring frosts. Professor Weldon's observations, therefore, are of timely interest and should be especially valuable to those who contemplate new or larger plantings of deciduous fruits.]

FROST in the spring at blooming time is one of the principal limiting factors in the production of deciduous fruits. Were it not for the fact that the blossoms or young fruits of our deciduous varieties are damaged in various parts of the country, and in every State of the Union each spring, fruit growing would be so easily accomplished that overproduction and poor prices would be the result.

PROFESSOR WELDON

Since even in a State with a semi-tropical climate like California there are areas that are subject to killing frosts in the spring of the year, the production usually is kept at a place which will permit of the disposition of the crop at a fair advantage. In this respect, frost may be regarded as a blessing to the industry as a whole.

The temperature which will result in the loss of a crop of deciduous fruit will depend on the kind of fruit that is being grown, the stage of development at the time of freezing, and possibly to a slight extent upon the variety and condition of the trees. Strong buds on well-ripened wood are always hardier and consequently more frost resistant than buds on succulent growth.

This point brings up the influence of pruning upon frost resistance. Observations have been made which point conclusively to the fact that trees short pruned, with the resultant development of soft, succulent sprouts, are more subject to frost damage than those which have been long pruned and which as a result have harder, better matured woods, with stronger buds.

DEGREE OF RESISTANCE

Pome fruits, as the apple and pear, will stand slightly more frost than stone fruits, as evidenced by the fact that the former fruits can be grown in many places where the latter cannot, because of killing spring frosts. This may not be due entirely to resistance, but in some cases to the earlier blooming of the stone fruits. Also, severe cold weather in the winter, when the thermometer registers 20 degrees below zero or more, will destroy most of the stone fruit buds and a crop of peaches or apricots, after so low a temperature as this, is not likely to set on the trees, while apples and pears will not be damaged in the least. The earliest blooming fruit that is grown in California, among the deciduous group, is the almond. Often during the month of January, blossoms will be open during a period of a few warm days, and as a consequence this fruit can be grown only in localities that are particularly free from late spring frosts.

Some varieties of the peach also blossom very early, the saucer variety even preceding the almond. It is not an uncommon thing to see saucer peaches blooming early in January in Southern California, at a time when the previous season's leaves have not all dropped. Thus there may be seen trees of this variety with the foliage of the past season, new foliage and blossoms all at the same time.

The period of greatest danger from frosts with our deciduous fruits in California is from the time that they are out in full bloom until it becomes too late for frosts to occur. In other words, maximum damage will occur when trees are in full bloom or after the young fruit has set. If anything, there is more danger to young fruit than to blossoms, but unopened buds are so well protected that they will stand quite low temperatures.

WHAT IS DANGER POINT?

The degree of cold that will result in the destruction of blossoms varies somewhat, but in general 30 degrees above zero F., or lower, is apt to do some damage. The duration of the freeze is, of course, something that influences the damage. Thirty degrees for an hour or two might not do any damage, even two or three degrees lower might do little injury if for only a short time, but if for hours, serious damage would result. Ordinarily we do not expect great damage to our deciduous fruits unless the temperature drops to about 26 degrees F.

The detection of injury after a spring freeze is simple. The central portion of the blossom of the stone fruits or the pistil, which at its base constitutes the young fruit, always shows injury first. If it shows a brown discoloration when cut into there has been damage. If fruit has set before the freeze, a cross-section will show brown discoloration in and surrounding the seeds.

Fruits have been known to set after frost injury so severe that the ovules were destroyed, and in such cases the mature fruit has been without seeds. This condition has often been noted in the cases of apples and pears. Peaches sometimes will develop after freezing, but the kernel of the seed will be a syrupy mass instead of a solid object and the gum from the seed may ooze through the flesh and skin of the peach.

The apricot apparently never sets fruit when any discoloration occurs about the pit after freezing. Detection of injury to the young fruits of the apricot is simple, as there is always shrinkage of the seed from the flesh, even though no discoloration is evident, and such fruits always drop in a few days after the freeze.

There are many acres of deciduous fruits planted in frost subject areas, where the hazard is too great for commercial production, and one of the chief considerations in choosing a deciduous fruit area for planting is freedom from killing spring frosts.

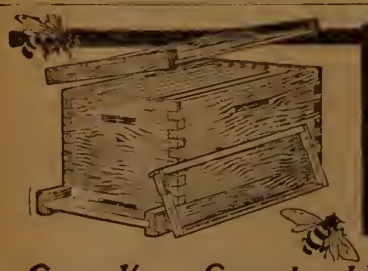
Shrinkage of seed of apricot, showing separation from flesh as a result of freezing after fruit was set.

Who Make Best Poultrymen?

IN THE Petaluma district world's premier poultry community, the most successful farmers, as a rule, are not those who have been raised in the country and learned the egg business by experience, but men who—for one reason or another—have left the city and "gone farming," according to H. W. Kerrigan, who has taken a leading part in building up Petaluma's poultry industry.

The reason, explains H. A. Weinland, county farm adviser is because city men conduct their work in the most business-like manner.

Scandinavians are the best workers in the Petaluma district, says Kerrigan, who considers hard, continuous labor one of the main secrets of poultry success.



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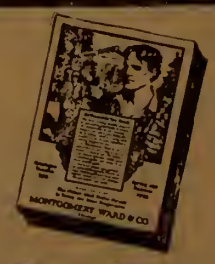

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Know Your CALIFORNIA

Little Journeys Into Agricultural Districts

[Editor's Note—Brief, intimate glimpses of agricultural communities in various parts of the State will be published from time to time under this heading. Subjects will be taken at random without regard to rank in production or agricultural importance. Get acquainted with your California, its opportunities and delights, by accompanying ORCHARD and FARM representatives on these informative "little journeys."]

NOVATO DISTRICT, MARIN

THE Novato district is regarded as Marin County's leading poultry section. It is located on the east side of the county about half way between San Rafael and Petaluma.

Being close to Petaluma, and well adapted to poultry raising and egg production, the district has grown rapidly for several years. The Poultry Producers of Central California market most of the eggs produced in the section. Figures recently compiled from their records show the following interesting increase:

1918 .... 4,857 cases received
1919 .... 7,109 cases received
1920 .... 12,866 cases received
1921 .... 23,547 cases received
1922 .... 28,341 cases received
1923 .... 31,150 cases received to November 28th

A more than 600 per cent increase in six years is a very good showing, and one that is surpassed by a few communities, Novato boosters point out.

Novato poultry producers have large grade chickens. At the Poultry Fanciers Show in Petaluma in August, 86 per cent of those exhibiting were prize winners. In the Farm Bureau Egg Laying Contest in Petaluma, a Novato pen was first this last year.

Novato people, too, are progressive in other lines. They have recently completed, at a cost of over $40,000, a community house which gives them one of the most modern and complete structures of its kind in the State.

Feed Rabbits Carefully

BE SURE to start feeding green stuff to rabbits gradually, advises George Green in reply to an inquiry from F. L. Hornsholder, Sawtelle (Los Angeles County). Alfalfa and rolled barley are the regular rabbit feeds but carrots, cauliflower, milk weeds and many garden greens may be added with safety. Carrots are good to feed at any time of the year, also dry crusts of bread. The latter should be dried out on a stove until crisp.

It does not pay to start with any but good stock, which costs $5 or more per animal. The best rabbits for meat are Flemish Giant, American Blue and New Zealand Red. The two kinds last named also are valuable for fur. Each rabbit needs at least 12 square feet of floor space.

"Subdue the Soil" or Lose

A GOOD example of the result of not obeying the Scriptural injunction, "Subdue the soil," is found in one of the leading agricultural districts of "Superior" California, near a city of considerable population.

The farm comprises 240 acres and has splendid natural advantages. Originally a small lake left 80 acres of the richest kind of soil, while there are perhaps 20 acres of fine fruit land which is watered by several living springs. The rest of the farm is wooded pasture.

An immense crop of tomatoes was grown on the low land, but early frost prevented ripening. Asparagus was tried, but was choked out by morning glories. Prunes then were planted but because of imperfect drainage some of them are being drowned out.

Part of the fruit land was planted to blackberries and strawberries but a tenant who allowed pests to destroy the named crop, he himself finally was forced off the land by rent reduction.

The farm was appraised at $[illegible] and mortgaged for $50,000. The mortgagee now has the place, which is growing up in weeds while the land is going to waste. Meanwhile some poor men are eking out a bare existence in out of the way districts on rocky clay hillsides which, with adequate labor they have made productive.

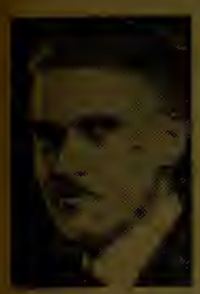
O. H. B.

Roselle—a Popular Jelly Plant

This Valuable "Alien" Is Recognized as One of Our Most Promising Introductions—Cultural Directions

By ROBERT W. HODGSON

FRUITS and nuts indigenous to the tropics and foreign countries are now, as never before, attracting the attention of the people of the United States. One of the most interesting of these is the roselle.



ROBERT W. HODGSON

One has but to consider the intense interest now being exhibited in the avocado to realize that during the past few years the American public has developed marked enthusiasm over fruits once little known and appreciated in this country. During the last 20 years, the culture of a number of such fruits has reached economic importance in California, including the avocado, the Japanese persimmon, the pomegranate, the loquat, the feijoa and the guava. The roselle, however, is hardly as well known as most of the fruits mentioned, although by no means less deserving of attention.

While many of the more recently-introduced fruits are of American origin the roselle is native to the Old World, where it has been grown and appreciated for many years. A strictly tropical plant, it is very sensitive to frosts and therefore its culture is at present limited to tropical and subtropical regions, being confined in the United States to Florida and California.

Since its merits have been realized by the English-speaking peoples, it has enjoyed its greatest popularity in Australia in parts of which it is now grown extensively. In Queensland, the culture of the roselle in recent years has assumed considerable proportions, the fruit being used largely for the manufacture of jams and jellies for export. The uses of the roselle are so many and varied, constituting as it does a most valuable addition to our list of jelly and jam fruits, that it deserves a wider cultivation than it now enjoys.

The roselle is particularly adapted to the home garden, as its culture is so simple and its requirements so few. In regions adapted to growing this fruit it should be found in every garden.

RELATED TO COTTON

Belonging to the Mallow family, the roselle is closely related to a number of our common and important plants, among which are the fiber-producing plants—cotton, Malva, Althea and Tree mallow or Lavatera. Among the vegetables it is related to okra, while some ornamental relatives are the abutilons and Hibiscus.

The habit of growth of the roselle is much like that of the cotton plant, the stems, however, being reddish and branching much more profusely. The plant reaches a height of six to eight feet and bears beautiful, large, yellow flowers, each with a dark red eye. The plant itself is quite ornamental and aside from its useful qualities constitutes a valuable addition to our list of ornamentals.

The flowers open during the night, and close during the forenoon, so that much of the beauty of the plant is not evident after 10 o'clock in the morning. The roselle constitutes one of the few cultivated plants in which the part used for food represents a portion of the flower, which is in this case the calyx.

The development of the calyx is very rapid within three weeks after the opening of the flower attaining its maximum size at which time it should be picked. If left to nature, the calyx "if we may so call it loses much of its property which makes it valuable. In addition, if allowed to mature the yield of the plant is very materially reduced since in the axil of each leaf there are several latent flower buds which develop only if the first crop of flowers is removed. By removing the calyces from the plant as fast as they reach the proper size the yield of the plant is greatly increased.

ROSELLE AN ANNUAL

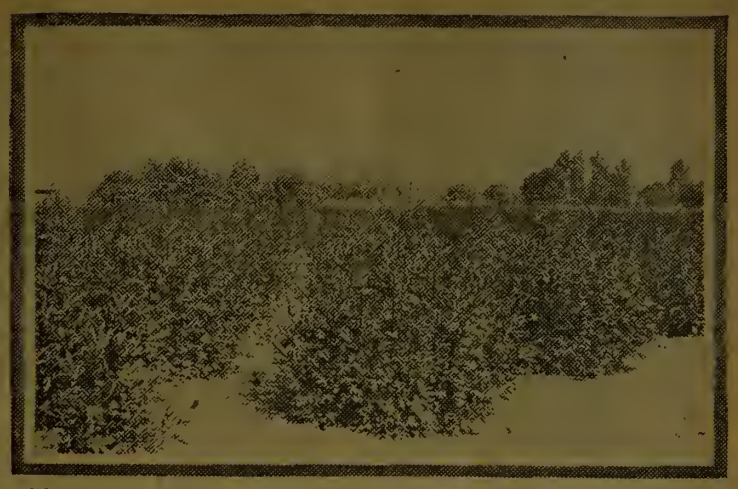
The roselle is an annual and must be planted each year. Since it is very susceptible to frost, it should not be planted until all danger from frost is past, which would be about the time of April in Southern California and June in the interior valleys. In planting the seed should be sown in a seed bed and then transplanted to the field where it is to remain. In planting it is a great advantage to have the seed germinated before planting. This may be accomplished by placing the seed in a moist sand and keeping it in a warm place. When the seed has germinated it should be planted in the field, some five or six seeds being placed to a hill and later thinned out to one plant.

The plants usually are spaced from six to ten feet apart each way, depending upon the character and fertility of the soil. The roselle demands no special type of soil but will thrive on any soil that is moderately well supplied with plant food. It apparently does best, however, on a rich, sandy loam. The use of large amounts of barnyard manure is not to be advised since in some cases it apparently stimulates the plant to vegetative growth at the expense of fruiting.

For best results, the plants require a large amount of sunshine available on all sides, which makes planting in crowded rows inadvisable. The aim should be to have the plants spaced so that when full sized there is still a slight distance between them.

Planting early in April, if weather conditions are normal in California, one may expect to begin harvesting the calyces in late August. The season is in full *(Continued on Page 10)*

A Field Planting of Roselle



Although the roselle is comparatively new to California, several growers in the southern part of the State have grown the plant on a comparatively large scale. This field in the San Gabriel Valley is said to have made a very satisfactory profit.

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Rear axle gears	Straight teeth	Rear axle gears	Spiral bevel
Oiling system	Splash	Oiling system	Pump, forced feed
Chassis lubrication	Grease cups	Chassis lubrication	Alemite
Back curtain light	Celluloid	Back curtain light	Glass
Side curtains	Stationary	Side curtains	Open with doors
Finish	Paint, air dried	Finish	Baked enamel
Gasoline mileage	About 18	Gasoline mileage	About 24
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DO YOU WANT a home in a rich valley near Spokane on three transcontinental railroads? Where soil is good, rainfall ample, summers cool, winters moderate, the kind of stump land that pays to clear, where a farmer with $1500 can hope to succeed; timothy and clover green eight months in the year, natural dairy country, land cheap, 10 yearly payments at 6 per cent. HUMBIRD LUMBER CO., Box 13, Sandpoint, Idaho.

OUR BACK-TO-LAND-PLAN. We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land, deep, rich, tried soil, complete irrigation with cheap water, thorough drainage, rail, water and highway transportation. Write owners, SUTTER BASIN COMPANY, California Fruit Bldg., Sacramento, Calif.

NO COMMISSION. Sell your farm direct to buyer. We put you in touch with thousands of buyers through our chain office service. Booklets of farms for sale by owners free. OWNERS' NATIONAL LISTING BUREAU, INC., 439-40 Roberts Bldg., Los Angeles, Calif.

POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, California.

FOR SALE OR EXCHANGE—All or part of 160 acres, level garden land, agricultural district, suburban to Vancouver, British Columbia. Buildings, Orchard, small fruits, city water. Owner, 767 Main St., Riverside, Calif.

DAIRY FARMERS wanting good, cheap land and feed, plentiful water, freedom from disease. No malaria. Good market. Write Lassen County Chamber of Commerce, Susanville, Calif.

FOR SALE OR EXCHANGE—40-acre, irrigated alfalfa farm, well improved, buildings, etc. Central Washington, near Prosser. Owner, 210 Main St., Huntington Bch., Cal.

FARMS WANTED

SMALL RANCH wanted, 5 to 15 acres, in warm belt, suitable for growing nuts, fruit, etc. Must be reasonable with small payment down and on easy terms. MUSICAL DIRECTOR, P. O. Box 76, Oakland, Calif.

CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

FARM WANTED—Immediately from owner. Send particulars. MRS. ROBERTS, Box 83, Roodhouse, Ill.

FARM TRACTORS, MACHINERY

NEW and rebuilt implements at special prices. Call and see them. ARNOTT & CO., 114 S. Los Angeles St., Los Angeles.

ALMOND HULLERS with separating devices manufactured by DUEBEL & CO., 315 First, San Francisco.

SITUATIONS WANTED

WANTED Employment as ranch chore man; excellent refs.; not rum kind. H. H. ROBINSON, Gen. Del., Oceanside, Calif.

HELP WANTED—Instruction

WANTED—Women, girls, learn gown making at home. Many spring openings. $35 week. Learn while earning; sample lessons free. Write Franklin Inst., Dept. K-535, Rochester, N. Y.

BULBS AND SEEDS

SAVE ON SEEDS—Buy fresh seeds direct from the grower for 5c per packet, 10c per ounce; 30c for ¼ lb., $1 per lb. for any variety of vegetable seeds except cauliflower. All kinds in stock ready for immediate shipment, postpaid. Peas, corn and beans, 25c per lb. Flower seeds, 5c packet. Send your list of wants today. Satisfaction guaranteed. Highest quality. One price—the lowest. ASHLAND SEED FARMS, Lakeport, Calif.

FOR SALE—Millions of tomato, cabbage, celery and other plants, and our book, "The Home Garden," 60c postpaid, tells what, when and how to plant and grow things. L. C. JOHNSON, Pomona, Calif.

GLADIOLUS, mixed, $1 buys 20 large or 40 blooming size or 100 planting size or 1000 bulblets, or 12 named bulbs, my selection. C. O. TORGENSON, Salinas, Cal.

GIANT WINTER RHUBARB ROOTS—Bear in 90 days; $1.25 doz., $7.50 cwt., prepaid. FORREST WALKER, Puente, Calif.

MISCELLANEOUS

YOUR HANDWRITING reveals your habits, qualities and talent for the work you are best fitted for. From the handwriting of your friends, employees, business associates, sweethearts and relatives you can tell whether they are intelligent or ignorant, honest or dishonest, good or bad, affectionate or loyal. Send specimen of writing and 10c for each trial analysis or $1 for complete analysis. JOSEPH J. PIERCE, Hayward, Calif., Box 541.

LAWNSHOWER SQUARE SPRAY SPRINKLERS distribute water uniformly over a large SQUARE AREA, reaching CORNERS of lawn or garden without flooding sidewalks and wasting water. Cast brass. Price $1.75 post paid. Money refunded if not satisfactory. LAWNSHOWER MFG. CO., 127 Tennessee St., Vallejo, Calif.

Beating the "Bootlegger" in Selling Eggs

IT WILL be necessary further to improve egg processing in order to prevent dishonest dealers from deceiving the public as to the true nature of goods sold, according to Cornele G. Ross, president Poultry Producers of Southern California, who declares the greediness of dealers and others in "bootlegging" eggs was the chief cause of the losses suffered on 1923 storage eggs.

C. G. ROSS

Although first-class processed eggs are practically as good as average fresh eggs and considerably superior to some, there is at present no sure way of distinguishing between the two, which makes dishonest dealing possible. During late summer a great many poor eggs are marketed, partly because quality is apt to be below par at this time of the year when the weather is hot and hens moulting—and partly because so few eggs are produced that many are kept a long time before being taken to town.

On the other hand, common storage eggs, with pasteboard flavor and absorbed impurities, are vastly inferior to those kept by the new vacuum seal process. The latter consists of covering the egg with a film of hot oil. By means of a sand blast this oil is later removed, restoring the fresh appearance, when placed on sale.

So far, well and good. But dishonest dealers buy these superior storage eggs at a low price and sell them in the fall as high-priced fresh eggs. Worse yet, they often mix in poor quality fresh eggs, such as above described. All of which disgusts the consumer with eggs, causing him to drop them from his diet. This reacts unfavorably on the market and finally injures the poultry producer.

In spite of the high quality of processed eggs, Ross is doubtful if it pays to improve their appearance by sand blasting, since this affords opportunity for dealer dishonesty. On the other hand consumers are suspicious of the shiny appearance of vacuum sealed eggs. Some new method is needed to beat the egg bootlegger and induce consumers to pay what first-class storage eggs really are worth. Standardization of grades and national advertising will help.

(A recent report from Washington indicates that the U. S. Department of Agriculture has perfected a process of detecting "renewed" eggs and thus putting a stop to "egg bootlegging."—Ed.)

Journalist Joins Dryden Poultry Plant

THE poultry breeding plant at Concord (Contra Costa County) conducted by James Dryden, former head of the poultry department of O. A. C. and one of America's leading poultry authorities, was strengthened last October by the addition of N. R. Moore, who purchased a partnership in the business. The new member of the firm came to California last summer from Corvallis, where he was mayor, city editor of the Gazette-Times and regent of the Oregon Agricultural College.

Moore immediately pulled off his coat and went to work helping take care of the chickens—and has since been too busy to put it on. According to the terms of the partnership agreement, each member of the firm is required to devote only half time to the business, but both the senior and junior partner work all day and often far into the night, in order to give their feathered stock the best possible personal attention.

With the aid of two assistants, 1500 hens are being trapnested and enough young stock grown to increase the laying flock to 3000 next fall. A year from that time it is expected to have 5000 hens producing high grade pedigreed poultry. Some of the hens now laying promise to finish the year in the 300 class.

The flock is about equally divided between Plymouth Rocks and White Leghorns. The demand for each breed appears to be equally good, although those who buy Rocks are not in the chicken business on such a large scale as the Leghorn people as a rule.

Asked if he was discouraged by the present depressed condition of the egg market, Moore replied:

"Not at all! There are ups and downs in every business. The man who stays wins. We have enough capital and common sense to stay in the game, which we know is a good one. So far our only trouble has been to supply the demand for high-class breeding stock. The other day we shipped $200 worth of cockerels to the southern part of the State and could sell a great many more such birds if we had them to spare. The demand for all the hatching eggs and birds we can produce from 200-egg hens seems unlimited."

Poultrymen from all over the country visit the Concord farm, where they pick up many valuable pointers in feeding and care of feathered flocks. At the time of the writer's visit Prof. A. G. Lunn, O. A. C. poultry inspector, and four students had stopped to study Dryden's methods. They had visited the Williams plant in Sonoma County and were on their way to the Santa Cruz egg laying contest.—O. H. BARNHILL.

The Mouse Trap Switch

A LARGE number of poultrymen have electric lights in their chicken houses, which they turn on early in the morning in order to get the hens up earlier and to get more eggs in the winter.

A time switch is expensive and many poultry raisers have a switch near their bed and then set an alarm clock to awaken them so they can throw the switch and then turn over for another hour's sleep.

A simple automatic switch can be made at very small expense with the following materials:

One single pole electric switch, cost 15 cents, one mouse trap, cost 5 cents; one dollar alarm clock with bell on outside and necessary wire.

The bell is removed. A piece of stiff wire is soldered to the tapper and bent around and down until it nearly touches the shelf the clock stands on.

The mouse trap is screwed to the shelf close to the wall and arranged so that when the alarm goes off the wire tapper hits the trap and releases the spring. Now mount the switch against the wall so that when the switch is open the handle of the switch rests on the mouse trap and when the trap goes off the switch is thrown shut, turning on the electric current. I have used such an alarm for two years and it has always worked.—RAY C. GRUHLKE.

TOBACCO FOR SALE

HOMESPUN TOBACCO. Chewing, 5 lbs., $1.75, 10, $3; smoking, 5 lbs., $1.25, 10, $2. Pipe and recipe, free, pay when received. CO-OPERATIVE FARMERS, Paducah, Ky.

RABBITS AND PIGEONS

PIGEONS—Selected Silver King youngsters for sale. JAS. A. AVERY, Napa, Calif., R. R. 1, 704.

Rejuvenating Old Hens

"THE trouble with your old hens may be caused by lack of exercise," suggests W. J. Dryden, writing to Mrs. C. F. Volk, Yuba County. "Make them scratch for their feed and be sure they are getting sufficient animal and mineral matter in their ration.

"If you are feeding only a bran mash, gradually add to it shorts, corn meal, ground oats and meat scraps until you have a ration composed of three parts of bran to two each of shorts and corn meal and one each of oats and meat scraps.

"Give the birds plenty of green feed, water, oyster shells, bone meal, grit and charcoal."

Best Rabbits for Meat

THE Belgian hare is a good meat animal, but the flesh is coarse and the young are slow about attaining marketable size, according to George G[illegible], who answers an inquiry regarding best kinds of rabbits from J. L. Burnham, Tracy.

The best meat rabbits are American Blue, New Zealand Red and Flemish Giant. The first two are valuable for their fur also. Either kind will weigh four pounds at 10 weeks if fed and cared for properly grown.

EXCHANGE DOES BIG BUSINESS

A report of the Kern County Farm Bureau Exchange shows that this organization handled more than [illegible] tons of grain during 1923 and purchased during the same period [illegible] worth of [illegible]

HOME FARM HAPPENINGS -:- *By* ONE OF US

MANUFACTURING MEAT ON BIG SCALE—We had the pleasure of [illegible] over the lone ranches of the Union Land and Cattle Company recently with Manager Harry Petrie and Superintendent Jess Clifton.

W. S. GUILFORD

The Union properties in California and Nevada comprise 355,000 acres of deeded land. About 45,000 cattle and the same number of sheep are handled.

Harry Petrie is one of the best ranch managers in America, which [illegible] the world. He not only knows [illegible] detail of the production end and [illegible] it thoroughly, but he is a keen [business] man with broad vision as [well] one who knows how and where [to] market his products to the best advantage.

"Raising livestock is just like manufacturing any other product," says Petrie. "It is simply a matter of making the highest class meat in the shortest possible time and at the lowest cost. Good blood and plenty of feed are two prominent factors in bringing this about.

"We buy the best pure bred bulls and rams we can secure, and it pays. The best that the best breeders produce is none too good to use on our range herds and flocks. The price of registered breeding stock, however, is all out of line with its value—it has been so low that many breeders have quit the business. Range men can afford to pay more for good stock, if they can afford to stay in the business at all, and will have to do so. We have been buying good bulls for less than we get for 2-year-old steers and this is not right. Breeders who stay with it are bound to come out all right."

Petrie believes in giving grass on the ranges a chance to produce to the maximum, so that pastures are not overstocked. This increases the yield per acre.

By keeping stock on good feed at all times, bigger weights and earlier marketing ages are assured, further increasing the annual per acre turn-off.

There is nothing "hit or miss" about the handling of these properties. Everything is figured out far in advance and an organization of trained men operates like a high-priced watch.

SPRAYING FOR PEAR WORMS—If there are any worms in our pears this season it will be because they can live on arsenic.

The first spraying was done thoroughly just as the petals from the blossoms were falling and the trees will be "fogged" with arsenate of lead every two weeks.

Arsenate of lead powder as put up commercially is one of the most satisfactory spray materials we use. The powder comes in four-pound bags, 12 or 24 bags to a carton. One bag goes in a 200-gallon tank—no bother of weighing out and no loss, such as there is in handling bulk material. Furthermore, that which is left over at the end of the season is in shape to keep until the next year.

Some experts insist that the arsenate of lead paste makes a better mixture and that it is cheaper to buy the paste in a 300-pound barrel.

This may be all right in a big orchard, with a spraying foreman on hand to see that each charge is properly weighed out and that any left in the barrel is headed up and buried where it will keep without drying out. But for almost every one else, the "one tank charge" package is mighty handy and it would be a blessing if all spray materials could be put up in as convenient a form.

HEAVY PRUNE BLOOM NOTED—Prunes blossomed heavily and were big and strong. Present indications point to a good crop again this year.

The French prune on Sacramento River bottom land is a wonderfully efficient producer and a tree that gives mighty little trouble, all things considered. It certainly is a source of great satisfaction to see a full bloom and satisfactory crop set and mature year after year.

DOCKING LAMBS IMPORTANT JOB—The weather has been cool, yet there has been some trouble with fly blow and maggots. The tails of lambs for market are cut four to six inches long—those of the registered black-face lambs just as close as possible. This tends to make them sore, with consequent infection.

Pine tar and sheep dip mixed together is the "dope" used both to keep flies away and to kill maggots and heal up the sore spots. The Ellenwood iron, a chisel-like affair, is used for searing off the tails.

There is a great deal of difference in the amount of blood in the tails of different lambs. Some are thin and come off with no bleeding whatever. Others are fat and it is almost impossible to sear them off slowly enough to keep the big veins from spurting. But once they are off and healed up, these short-docked sheep look fine and are much cleaner.

CURRY COMB—OBSOLETE INSTRUMENT?—We saw an old man camped along a roadside giving his horse a good, thorough cleaning with a curry comb and brush recently. Both seemed to be enjoying the job—particularly the horse.

The man had a one-horse outfit, wagon and camping necessities—a regular "wagon tramp" he was. But the way he was cleaning the old gray horse showed that he was a lover of animals and knew how to handle the comb and brush.

On many California farms curry combs and brushes are almost unknown. Mules and horses are turned in the corral after they are unharnessed and fed, and there they roll and do their own "cleaning." They live most of their lives in the open and keep themselves clean—far different from stock kept tied up in stalls.

Good horsemen—"mule skinners"—are not so plentiful in the Sacramento Valley as they were ten years ago. It is easier to get men to drive small tractors than teams.

We wonder if "Californians Inc." ever thought of advertising that mules and horses do not need so much currying as one of the State's advantages.

THEN CATTLE WELCOME SPRING—And speaking of the gray horse shedding his hair—what a welcome thing spring and lots of green grass must be to thin, hide-bound, poorly wintered cattle.

The lush, green feed fills their paunches and cleans out their alimentary tract so that the tissues are in fine condition to assimilate the "harder" grass as it matures, and store up fat in the system.

The old, dead hair loosens up and slips off, and when the cattle begin to lick themselves, you know they are "doing good."

It must be a "grand and glorious feeling" to be a cow brute about this time.

NEW SHEARING RECORD CITED—George W. Callahan of Reno, Nev., is authority for the statement that the world's record for shearing sheep with blades is 347 head in ten hours. Some shearers have difficulty in turning out 40 or 50 a day; others do 130 to 165 day after day. A crew of ten men that averages 1000 a day through the season is considered to be doing good work.

Callahan is one of the best-posted men on the Pacific Coast on sheep and wool affairs. Over forty years ago he fitted and showed Spanish Merinos at the California State Fair and has bought sheep and wool in every Western State. He is said to have invented and introduced the hand sheep shears now used all over the world.

"There are more kinds and classes of wool in California than anywhere else in the world, including some of the best and some of the worst," says Callahan. "If I had a boy whom I wanted to learn the wool business I would send him to California.

"The wool in most demand now is half-blood, three eighths and one fourth blood. A few years ago very fine Merino brought the most money. These coarser wools are in big demand now for garments of coarser texture. There is every indication now that the sheep and wool business will continue good for a number of years," he says.

FINDS ARTICLES VALUABLE

"I always read the ORCHARD and FARM. I think it has many valuable articles and I have tried out many of its suggestions."—MRS. J. A. BOOTH, Riverside, Calif.

Farmers Urged to Give Whole-Hearted Support to Colorado River Project

EVERY farmer and friend of agriculture in California and the Southwest should concern himself with the control of the Colorado River.

Even those who are not directly affected by this great project should get behind it heart and soul for the good of fellow-producers who are vitally interested.

Perhaps the largest number of these farmers is found in the Imperial Valley. This wonderful garden spot is laboring under a condition, the parallel of which probably never before existed in the history of America—the spectacle of marvelously rich soil frequently producing crops of greater value in one year than the total sale value of the land!

Imperial Valley farmers are demanding the passage of the Swing-Johnson Bill because they believe this alone will stabilize their land values and do away with the system of tenant farming and exploitation which, despite wonderful progress, has prevented the valley from fulfilling its destiny.

MORE POWER WILL BE REQUIRED

But from the farmer's viewpoint, the project has even a broader significance. As the amazing influx of population continues, Los Angeles and environs will demand more and more water and power for domestic and industrial use. And proportionately more power will be required by farmers, for the supply of gravity water available for irrigation will diminish and pumping from wells will become more necessary and more general.

This power question, then is of most interest to local farmers. The producers of Los Angeles County and other nearby agricultural districts do not anticipate getting gravity water for irrigation as a result of Colorado River control, nor do they have to worry about a Colorado River flood menace. It is the Imperial Valley and adjacent sections, that are most interested in this part of the project.

The superiority of electric power for pumping is indicated by the situation in the San Joaquin Valley, where despite comparatively high rates, hundreds of ranchers buy electric current from privately-owned companies rather than use other types of power plants. Then there is the added advantage of having electricity for domestic use. No longer will the farmer be content with less household conveniences than the city family enjoys.

Farmers are interested, too, in population, for population means industry. Industry means pay rolls, pay rolls mean more local demand for the products of the soil. It is expected the passage of this measure will assure final victory in the battle of the West to wring industrial and financial independence from the East. Eastern interests know this. That is why the West cannot hope to win the fight without concerted action.

WILL DO AWAY WITH INEFFICIENCY

Many of our farm products now are going East to be manufactured into articles which are returned to us, with the added cost of 6000 miles of transportation and a very substantial profit to factories and middlemen. The result of the Colorado River development will be to bring more and more industries to the West. Not only the increasing local [illegible] but also the growing importance of trade with Oriental and [illegible] ports make this inevitable.

[illegible] not alone the farm products used in manufacturing and [illegible]—[illegible] as cotton, wool, [illegible] and grain—that will be affected [illegible]. Our perishables in the selling of which [illegible] the difference between profit and [illegible] greater quantities right here at home.

[illegible] has everything to gain and nothing to [illegible] Swing-Johnson Bill. Apparently the Pacific [illegible] of Destiny. The question at issue [illegible] conspiring to [illegible] and elect- [illegible] pay of [illegible].

Pipe

We can promptly fill your orders for pipe or fittings. Our four-acre plant is equipped from end to end to speedily satisfy your requirements for new or renewed pipe. Our special formula for dipping asphaltum lengthens the life of pipe ten years. Our remanufactured pipe is tested before it is sold. It must be able to meet our guarantee.

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203 Folsom St., San Francisco

When buying new pipe be sure that it has been both rattle and steam tested.

Grape mildew

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SEASONABLE SUGGESTIONS FOR THE BEE KEEPER

By J. D. BIXBY, Sr.

BEES MOVED TO CITRUS DISTRICTS.—Large numbers of bees have been moved into the citrus sections of Southern and Central California to take advantage of the orange bloom. Butte and Tulare Counties in the North and Los Angeles and Riverside Counties in the South are the favored sections.

J. D. BIXBY SR

INTERMOUNTAIN COUNTRY SHIPS.—Utah and Idaho ship many carloads of bees into Riverside County each year for the orange blossom honey. When this is secured the colonies are divided into two or three nuclei each and reshipped to the alfalfa and sweet clover regions from which they were brought. The honey gathered in the orange groves and the value of the increase more than pay the cost of moving.

HOW HIVES ARE HANDLED.

In shipping by rail, from 300 to 800 colonies are put in each car. Tops of the hives are always removed and replaced by wire screens. If hot weather crossing the desert is expected, both tops and bottoms of hives are removed and replaced with screens. The hives then are tiered up on strips of wood to afford space for ventilation.

Refrigerator cars are preferred for moving bees long distances in hot weather, but for short hauls and cool weather, stock cars are equally safe. Trucks are cheaper, quicker and safer for all hauls of less than 150 miles. A 5-ton truck with trailer will carry 200 2-story colonies.

SAGE RANGES RUINED.

Ventura County has sent an unusual number of her apiaries down to the Los Angeles orange groves this season. Lack of rain ruined the sage honey ranges and only migration could save the bees.

A REVERSAL OF OPINION.

A Ventura County apiarist has moved 200 colonies of bees, equipped for comb honey production, to Eastern Los Angeles County. This is the first time within my knowledge that a comb-honey producer has moved down to the oranges, although the reverse is common enough. Twenty years ago the orange bloom was looked upon as only a cocktail or appetizer to whet the appetizer of the bees for the sage honey. Now 25 or 30 carloads of orange honey for the season is a light crop for the State's citrus acreage.

LIKES ALUMINUM COMBS.

I am using quite a number of aluminum combs in the extracting supers and wish I had more, as the moths do not destroy them and the bees use them readily.

PRO AND CON ON LOSS OF RANGE.—Are beekeepers injured or not by the steady encroachment of cultivation on the sage covered valleys and foothills? This is an ever-recurring argument at all beekeeper's gatherings. The "pros" argue that as the sage is replaced by orange and lemon, which yields more honey and with greater certainty than the sages, he is benefited, while the "cons" maintain that the loss of nectar and pollen from the wild plants covering the latter portion of the season—white sage, phacelia, filaree, sunflower, blue-curls, etc., more than off-set the possible greater spring yield from orange. Take your choice. I side with the "cons."

BEES ARE HEAVY DRINKERS

Be sure the bees have free access to water during dry times; they drink a surprising amount. A friend who had 100 colonies in a dry location found that during one of our hot spells they used up 35 gallons per day for a week. If bees bother by seeking water about the lawn faucets, etc., just brush the faucets over with kerosene once or twice a day.

SORTING OVER COMBS.

I am taking advantage of many [illegible] a greater total loss [illegible] to sort over all my combs [illegible] extracting combs [illegible] ory to [illegible] d [illegible] five [illegible]

and, worst of all, gnawed out at the lower front corners and filled in with drone-comb making them worse than useless. The bees will not use them until forced by lack of room.

One can't get honey in commercial quantities without bees (colonies), and can't have bees (numerically) without paying some attention to the condition of the combs in the broodnests. Combs that are a half or a third drone-cells, or so stretched by hot weather that most of the cells cannot be used for brood-rearing at all, are poor equipment to fill a hive "boiling over" with worker bees when the honey flow comes on. Have every comb in the broodnest as completely worker as possible; the bees will stick in all the drone cells they need, in odd corners.

INTENSIVE BEE CULTURE PROFITABLE.—We hear much about "intensive farming." I know of no better chance to exercise it than in honey production; nor of any branch of agriculture where it will give better returns for the time and care invested. Individual attention to your colonies will pay every time, just as does individual attention to the trees in your orchard or the hens in your flock.

REASONS FOR NOT FILLING COMBS.—J. H. C. (Hemet) asks why so many of his combs are not filled out at the corners near the entrance. Two reasons: One is, mice or lizards have got in and gnawed away the combs; the other, swarm was hived when the nights were cool, too cool for the bees to draw out the foundation near the entrance, so they gnawed it off, using the wax elsewhere.

Get rid of these defective combs by putting them up in the supers, if otherwise good, where they will (probably) be filled out with drone comb, but be good for extracting. Supply their places with complete worker combs that have been used for brood rearing.

THE SPRING DWINDLING PROBLEM.—"Spring dwindling" has been serious in nearly all apiaries of Southern California—particularly those in the citrus belt. The chief cause of this trouble has been lack of pollen for the preparation of proper food for the larval bees.

There have been thousands of cases of starvation from lack of honey, it is true, but many more from inability to secure pollen for winter stores, or fresh pollen for winter and spring use.

Abundant feeding of sugar has its use; bees are kept alive by it, for a time, but only when it is combined with pollen and particularly with fresh pollen as a stimulant to brood-rearing, do we obtain increase in the colony.

There seems to be no way to guard against these conditions, and the only remedy is moving to sections where pollen-bearing plants enable the bees to store sufficient pollen for winter.

Nonproductive Does

I have raised rabbits for eight years and had no trouble with them until recently. At four different times lately I have bred my does and when the time came for them to kindle they built their nests, but produced no young. What could have been the trouble?

Last week my American blue buck, winner at the State Fair, died suddenly, although apparently in good health until dropping off. Was it probably heart failure?—OWEN STEWART, Amador County.

IT IS rather difficult to determine the cause of does not producing young, without knowing the conditions; such as age of stock and how many litters they have had during the year.

In the first place, rabbits will not mate readily or have much success with young after August. Spring and summer is the proper mating season. If the does have had more than three litters a year they are not likely to do well. It is best to let them rest until February.

Possibly your rabbits are too fat, or they may be too "run down" to breed successfully. The buck may be temporarily sterile from overwork or not enough use. If this is the case, feed him once a day for two days on peas which have been soaked in water 24 hours. Don't give him anything else until he eats the peas. The latter are also good for does that don't want to mate.

You will not get many good youngsters from rabbits over three years old, nor from bucks which have been underfed. Keep their flesh firm and give them plenty of exercise.

It is hard to say what ailed the buck that died suddenly, but it may have been acute indigestion.—GEORGE GREEN.

INTERNATIONAL MOTOR TRUCKS

Take your crops and stock to the market that offers you the most—do your buying where you can get the lowest price. On this practical basis, an International Motor Truck will pay its way by giving you greater control over the prices you get and the prices you have to pay. Every day Internationals are shortening distances and speeding up hauling for dairy farmers, stock feeders, truck gardeners, fruit growers, and others who make their living through various branches of Agriculture.

These trucks save time on the road, reduce labor costs, and make available better markets; and they do all of this at small expense. They are built sturdily throughout and have plenty of surplus power to carry the loads in winter as well as summer.

The Speed Truck shown above carries a ton load easily and quickly. It is equipped with electric lights and starter, power tire pump, truck cord tires; and special farm bodies are available to fit individual requirements. An International Speed Truck makes an excellent all-purpose truck for the average farm. Where larger loads must be hauled, heavy-duty Internationals may be had in capacities up to 10,000 lbs. (maximum.) Find out for yourself how conveniently you can secure an International Motor Truck—it is a profitable investment. A letter will bring complete information.

INTERNATIONAL HARVESTER COMPANY of America (Incorporated)

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A visit to a modern creamery

Where Science Serves Agriculture

THE great strides of the creamery industry on the Pacific Coast are nowhere more conspicuously shown than in the splendid facilities which have been provided for the scientific manufacture of milk products.

The illustrations on this page are characteristic scenes in the big, modern plants of the Golden State Milk Products Company, California's largest concern of this kind.

Diversity in manufacturing as well as quality in the finished product are marked essentials in the up-to-date plant and every modern creamery therefore must be equipped with facilities for turning out butter, cheese and powdered milk as well as other dairy products.

Grading milk at the receiving platform. As milk is received, it is immediately subjected to a series of tests, including a test for the butter fat content, an alcohol test to determine whether the milk is of normal composition, an acidity test for sweetness and a bacteria count for cleanliness.

Above—Glimpse of drying equipment. Skim milk is sprayed into a chamber where it is subjected to cyclonic currents of hot air which carry the water off as vapor.

Below—Automatic butter cutting and wrapping machine—new invention which cuts butter into quarters and wraps it.

Above—Section of cheese curing room where Swiss cheese is perfected. The curing process requires about eight months, during which time, each cheese is turned over every 48 hours and washed with a salt brine to harden the rind and develop the flavor.

Below—Super-heated steam apparatus for washing, sterilizing and drying cans.

Lower right—Coagulation test for powdered milk.

ORCHARD *and* FARM

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MAY 4, 1924

Pedigreed Poultry Promises Petaluma Salvation

Heavy-Laying Hens Point the Way

HIGH-PRICED feed and low-priced eggs are forcing Petaluma poultrymen to improve the quality of their flocks, in order to keep out of red ink and show a real profit. Accredited hatcheries now are turning out choice chicks, many of which grow into heavy-laying pullets and prepotent cockerels, making possible the breeding of basket-filling egg machines. Breeders are trap-nesting and using every other known method to improve the quality of their flocks.—*The Editor.*

By O. H. BARNHILL

IS IT a fact that many Petaluma poultrymen are just about breaking even these days, making no real money?

Ernest Williams, enterprising chicken rancher in the Cunningham district, considered the question a moment. "Yes," he admitted, "'tis true. But they have only themselves to blame," he added. "Even at the present low prices there is good money to be made in the egg business.

"The secret of success in commercial egg production," explained Williams, critically examining a newly-hatched baby chick, "is to keep the right kind of laying stock. It is not enough to handle birds that will lay a great many eggs, as it is equally essential to have a large share of the eggs come at the right time of the year—when high prices prevail.

"It makes all the difference between profit and loss," continued my informant, "whether you must sell the bulk of your eggs in the spring at 20 cents to 30 cents, or in the late fall and early winter at 50 cents. This is not a question of theory with me, but of painful practice.

"I know by experience what it is to play the chicken game without winning financial prizes. It is possible, however, for a poultryman to pull himself out of red ink, as I did, under circumstances similar to those surrounding the average chicken man."

Like many other successful producers, Williams was formerly engaged in different work, his specialty having been automobiles. For 18 years he built auto bodies in San Francisco, then for 12 years was employed as a chauffeur.

"In those days," he relates, "a chauffeur was not considered a servant, but an expert mechanician who was treated about the same as the owner of the car. But my health failed and after awhile I hated the sight of an auto."

Buying his present 10-acre place for $6000, Williams purchased a flock of hens and went to work, afterwards adding incubation and brooding to his duties. After two years of hard labor he found he had nothing to show for his work. Of course, he had made a living, but was not getting ahead and when interest on investment, depreciation and wages were counted, the business did not show a profit.

INTRODUCES BETTER BLOOD

Then he began to take stock, to see if he could figure out what was the trouble. His hens laid an average of 130 eggs per year, which was above the average for the district. He finally concluded if he could secure a strain of hens that would lay 30 more eggs annually his profits would double.

He was forced to send to Washington for heavy laying stock, because at that time Petaluma poultrymen were not in the breeding business very extensively. A Hollywood male was purchased for $50 and two hens for $30 each. Somewhat to his surprise, the introduction of this superior blood increased production from 130 to 200, just twice what he had counted on. Test pens of the old and new stock were given exactly the same treatment, the egg yields being as above noted, proving that "blood will tell."

When a man gets a good thing his neighbors soon find it out and want to share it with him. As an officer of the local Farm Bureau center, Williams discussed the poultry business with his fellow farmers, who wanted to buy some of his heavy-laying stock. This forced the newcomer into the breeding business, with the result that $2500 worth of stock was sold from the progeny of the high-priced Hollywood trio and 20 pullets left with which to continue the breeding business.

"All ventures into the realm of high-priced birds do not prove so successful," admitted Williams. "I paid $150 for another cockerel, but soon had to get rid of him, because his progeny showed an occasional brown feather. If he had been crossed with other stock the result might have been different, but this experience shows the risks a breeder takes in buying costly birds."

Williams sells a great many cockerels for $2 to $10 each and is paid premium prices for baby chicks. The total output of his modest plant is sold long in advance. He could get higher prices, but does not consider it good business to charge all the traffic will bear.

"If a producer always has orders for more stock than he can grow," explains Williams, "he knows just how to proceed with his business. The trouble with the average farmer is that he never knows where he is going to sell his crop nor what he will get for it."

The magic number in the poultry world seems to be "300." Years ago it was 200, that being the standard set for ideal egg production. Williams' best cockerels all come from 300-egg hens, bred to hens which lay 200 to 250 eggs, or 250 to 300, depending on the grade.

The system of identifying the chicks hatched from each individual hen is quite complicated, entailing much careful work, but is absolutely accurate. Only perfect, completely "fluffed" chicks are sold.

Being of an original and inventive turn of mind, Williams had his incubators built to order by the Petaluma Incubator Company and has made some radical changes in hatching practice.

POINTS ON INCUBATION

In the first place, the customary cooling of eggs during the incubation period has been entirely dispensed with. The thermometer is not placed down between the eggs, one of which may be in different condition from most of those on the tray, but is fixed above the eggs, which gives a fairer temperature test and does not interfere with moving the eggs for turning or examining.

Williams confesses that all his experiments are not successful. He tried, for example, to turn the eggs by tipping the tray and then giving it a sudden jerk—something like a camper flipping a flapjack—but after spoiling a few hundred eggs he returned to the usual method.

When Professor Rice, poultry expert from Cornell University, visited the Williams ranch, he was surprised to find the owner had worked out a feed ration almost identical with the one adopted by the New York college. This has been modified somewhat, laying hens now being fed equal parts, by weight, of cornmeal, bran, middlings, fish meal and meat scrap.

The scratch feed consists of equal parts by measure of wheat and cracked corn. Williams hit upon a method of regulating the grain ration which is simplicity itself and goes a long ways towards reducing poultry practice to an exact science. Each morning the round metal mash hoppers and their contents are weighed and the quantity of feed consumed by the hens in each room the previous day noted. An equal quantity, by weight, of grain is given the hens that day.

"Many poultrymen make the mistake of giving their hens more grain when they fall off in their feed," points out this breeder. "The birds really need less grain, because they eat less mash. Additional grain tends to throw the ration still further out of balance and is liable to cause liver poisoning and other troubles."

In visiting commercial poultry plants from Portland to San Diego, the writer never has seen one better equipped or better kept than this Sonoma chicken and egg factory. The buildings are conveniently arranged and neatly painted, while an overhead sprinkling system insures a plentiful supply of green feed during the dry season. A feed and litter carrier reduces the labor cost and also is used to facilitate the work of pest control. A long metal box or trough is filled with disinfectant and placed on the carrier and used for dipping the roost poles. The Cornell expert took a picture and measurements of this device.

BUSINESS SHOWS REAL PROFIT

"Yes, all these things cost money," admits Williams, "but we figure they are commercially profitable. During the past three years we have spent $5000 annually for improvements. If the business didn't show a real profit and pay the going rate of interest on the money invested I would quit and go into some other line of work. I don't believe farmers need to depend on increased land values for their profits; in other words, to sell out before they can realize on their investment. If a farm is rightly managed it will pay as well as any other commercial plant, on an average."

"The work Williams is doing in producing high-grade, pedigreed poultry and in demonstrating their superior ability to fill the egg basket at the right time of the year is helping place the Sonoma egg industry upon a solid basis of real prosperity," comments Melvin Buster, poultry expert of the Extension Service. "With the present high-priced feed and low-priced eggs, poultrymen need something besides quantity production; each hen must lay a large number of eggs at the right time of the year."

Poultry operations are conducted by Williams on the theory that the business justifies the use of first-class stock and equipment. All his buildings are neatly painted, while overhead sprinklers water the green feed crops.

Williams figured that by increasing production from 130 to 160 eggs per hen he could double net profits. He didn't stop until he reached the 200 mark, after which neighbors have kept him busy producing for them the same kind of stock. The only way to make real money in the egg business, he believes, is to keep only heavy-laying hens.

ORCHARD *and* FARM
THE CALIFORNIA AGRICULTURAL WEEKLY

MAY 4, 1924

Is There a Way Out for the Irrigation Settler?

An Interview With Dr. Elwood Mead, Newly Appointed Commissioner of the Reclamation Service, Former Professor Rural Institutions, U. of C.

By O. H. BARNHILL

WHAT'S the matter with national irrigation? Why aren't settlers repaying construction costs? Is the Government going to lose the $143,000,000 it now has invested in reclamation work? Can California land developers and farmers learn anything from the Federal Government's irrigation experience?"

Dr. Elwood Mead, newly appointed Commissioner of the Reclamation Service, who for several months has been a busy member of the Fact Finding Commission, looked up from his comfortably intrenched position in Agricultural Hall and smiled tolerantly as the inquisitive caller laid down this barrage of questions.

"The case of national irrigation is far from hopeless," he replied, "although serious mistakes have been made. California land developers have committed some of the same errors, a fact which they are beginning to realize.

"The Federal Government only now is learning some of the fundamental principles of irrigation colonization which I assisted in working out in Australia years ago. Our State with profit adopted these principles, the soundness of which is being clearly demonstrated.

FARMER'S WELFARE IGNORED

"As Miles Cannon, field commissioner of national irrigation, admits, the Government erroneously took this position: 'We have constructed the projects—now let the farmers pay the bills. The resources of the Government have been centered almost exclusively on construction work. Such a policy eventually will contribute largely to general curtailment, if not destruction, of national irrigation. Success depends upon the welfare of the farmer.'"

Dr. Mead has been investigating national irrigation for the Government since last January, taking up the work shortly after his return from a nine months' trip abroad, when he visited Australia, Java, Palestine and Europe. The chief purpose of this journey was to assist in an advisory capacity an English commission which was planning to locate 6000 farmers on irrigated land in Australia.

Mead admitted gratification at being again called to the field where for eight years he labored in Government colonization work. Seven years had passed since his return to this country and he was pleased to see the successful working out of those principles which he put in operation on the island continent.

Most of the colonists whom he assisted in establishing on irrigated tracts were old country people, Scotch and English, who though rather slow are surely forging ahead in their work of making productive farms out of raw land and repaying to the Government the cost of constructing irrigation works.

"The only serious trouble which had developed," related Mead, "was the question of the settlers paying interest charges which had accrued during the war. At that time the Government discouraged settlement, desiring her citizens to fight, rather than farm. It was, therefore, unreasonable to expect settlers to pay the expense of carrying irrigation enterprises over this period, a point of view which the Government ultimately took.

"The English commission contemplated putting onto the land men without capital. This would have been a grave mistake, as the commissioners finally were convinced. They decided to require a minimum capital of 500 pounds, which now has an exchange value of about $2,000."

This portrait of Elwood Mead, father of land settlement in California and noted also for his remarkable accomplishments in Australian irrigation development, was presented by Edgar M. Wilson to the Delhi Community Hall. It was painted by Spencer Mackay of the California School of Fine Arts.

The returned traveler was asked why he visited Java.

"Because I wanted to see how 38,000,000 people manage to make a living on an island no larger than New York State," he explained. "Although they have no large cities and are not engaged in manufacture or trade to any considerable extent, an average of 1500 persons earn their living on each square mile of land, a record not approached by any other country in the world."

"Well, how do they do it?"

"See here," invited Mead, pointing to a photograph showing a Java residence surrounded by a jungle of fruit trees. "A good share of their living comes from these trees—bananas, breadfruit, cocoanuts and other nutritious products. Then see this—pointing to a picture of a terraced hillside—"this rice field shows how intensively the Javanese cultivate their soil, which in a tropical climate yields immense crops."

VISITS BIBLICAL SCENES

The visit to Palestine was made to help the Jews, who are returning there in large numbers, to solve irrigation problems. Mead was deeply impressed with the experience of seeing places mentioned in the Bible.

"Right there," said he, pointing to a picture of a barren hilltop, "Christ was crucified; here is the place He was buried; and there is the very spot where Joseph was sold to a company of Egyptian traders."

But to return to American irrigation problems. Settlers on national irrigation projects were getting so far behind with construction repayments—and in some cases even operating costs—that Government officials realized something had to be done to improve the situation. As President Coolidge pointed out in his annual message to Congress last December, the problem is serious, because large numbers of project settlers have failed completely and had to leave their land. Even their successors, in numerous cases, failed and it is a toss-up whether many of the "third comers" can succeed.

The Fact Finding Commission consists of Thomas E. Campbell, Ex-Governor of Arizona; John E. Widtsoe, former president of the University of Utah; James R. Garfield, former Secretary of the Interior; Clyde Dawson, Denver irrigation expert; Oscar Bradfute, president of the American Farm Bureau Federation; Julius R. Barnes, president of the National Chamber of Commerce, and Dr. Mead.

The Commis-(Continued on Page 10)

Further Observations on Citrus Fruit Production in Sicily

Part Two of Article Commenced Last Week—Marketing of By-products—Comparisons With California

By W. V. CRUESS

Associate Professor of Fruit Products, University of California

SICILY has much to learn from California in the matter of grading, storage and packing. Nevertheless, fairly careful size and quality grading by hand is done by the grower-packer or by the buyer-packer in sheds or buildings practically devoid of mechanical equipment. The best grades are paper wrapped and packed 300 to 360 to the 40 kilogram box (a kilogram is about 2.2 lbs.; 40 kilos is about 88 lbs.).

Before the war a great deal of the best fruit was exported to Russia: closing of this and other European markets was a severe blow to the industry. [illegible] these former markets are still dead.

A loose unwrapped box pack is also exported for use of [illegible], soda fountains, restaurants, etc.

Lemons are not grown for the manufacture of by-products primarily; the by-products industry merely serves as in California to [illegible] the surplus and culls from the shipping fruit. In recent years because of the closing of former markets, the surplus has been very much larger than normal and by-products manufacture has rather [illegible] itself.

[illegible] on hand about three [illegible] of citrate of lime [illegible] about 20,000 tons [illegible] acid [illegible] this [illegible] citrate. The causes for this oversupply are varied, but two are most important. These are accumulation during the war because of lack of shipping and closing of markets, and the second cause has been the supplying of the American market from the factory of the Exchange Lemon Products Company at Corona, California—another reason for the Sicilian's "love" for Californians.

GOVERNMENT SALES AGENCY

All citrate of lime manufactured in Italy must be deposited with a government agency known as the "Camera Agrumaria"—loosely translated: the "Citrus Chamber of Commerce." Until this year this organization agreed to advance 25 per cent of the market value of the citrate on delivery and later 75 per cent on warehouse receipts.

The "Camera" set the price at what it thought the market would stand. This was "duck soup" for the growers and citrate manufacturers. Citrate was made in great quantities and the Camera Agrumaria was swamped with a flood of it. On May 1, 1923, it is said that it owed some 80,000,000 lira (about $ 750,000).

It has now "drawn in its horns," so to speak, and is going to advance "something" on delivery and the remainder after sale; appears as if some one is going to wait some little time for his money, for the Camera has a three years' supply on hand and with receipts of citrate exceeding outgo, the government is trying to extend the market for fresh fruit and to discourage citrate production by lowering the price.

Is this a good example of too much government control? I am not an economist and do not profess to know; but it does not look good to me as a means of saving an industry. The California way of saving ourselves is best, I believe.

HOW BY-PRODUCTS ARE MADE

I do not wish to close without giving you a brief account of how essential oil and citric acid are made in Sicily. I shall first describe a medium size citrate and oil establishment at Palermo, this being typical of a half dozen others that I visited.

I found the owners, Mr. S Coleone and his sons, very cordial toward visitors and well informed upon the technical and business sides of their work. The plant was started several years ago as a "back yard" affair on a very small scale. By manufacturing high quality oil and citrate and by careful business management they have built up the plant to a very respectable size. It is situated on the shore and on a railroad spur. Windfalls, packing house culls and surplus fruit are used. The attempt is made, however, to use only fresh, sound fruit.

This is heaped on the stone floor in the cutting room. Sitting before a waist-high, shallow wooden trough, girls cut the lemons in half lengthwise with lightning rapidity. Other girls with a metal, sharp-edged right angled spoon, scoop out the flesh, displaying almost unbelievable skill.

The juicy pulp is crushed in a roller crusher, much like the once familiar grape crusher of California. The juice then is expressed from the pulp in heavy grass-woven bags in a screw press; operated by several heavyweight pressmen on the end of a long pole.

This juice then is placed in a wooden tank of about 1200 gallons capacity. The juice is heated by steam coils to the boiling point and precipitated chalk (lime carbonate) sufficient to neutralize the acidity of the juice is added.

Citrate of lime forms and settles as a white, fine-grained sediment. This is more soluble in cold than in hot liquid, therefore the tank is heated while the precipitate settles. The hot liquor is drained off and (Continued on Page 8)

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TO SERVE All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY
By THE EDITOR

FOOT-AND-MOUTH DISEASE WARNING

Through the medium of the daily editions and in other sections of the Sunday paper, Examiner readers have been kept informed of the determined fight against foot-and-mouth disease which has been waged in California for weeks.

Yet, despite the wide publicity that has been given the rules and regulations, and repeated warnings issued by State and Government officials, many persons seem unable to realize the seriousness of the situation.

Heavy fines have been levied for violations of the emergency rules, yet careless or irresponsible citizens continue to run afoul of the law. There is a feeling in some quarters that the regulations are unnecessarily severe.

On every hand are heard murmurings of discontent and assertions such as these: "The disease is not always fatal to animals; most of them would recover if not killed. They have had it in Europe for years," or "The authorities are making a mountain out of a molehill," or "Why should I give up my picnics and keep my pets at home in order to help the farmers save a few cows and hogs?"

THIS IS NO TIME TO MINCE WORDS

We cannot believe those who hold such views have given much thought to the matter. In any emergency of this character we must accept the opinions of scientists and officials who KNOW. How ridiculous it is for one of us who has no real conception of the disease or its history to temporize with a situation of such grave consequence to the entire State!

Any one who fails to give complete co-operation is lacking in patriotism as well as common sense. In time of war, the best-equipped and most experienced generals take command and it is not for others to question their tactics.

A LONG, EXPENSIVE SIEGE

Let us not regard this matter lightly! At the very best it is probable the quarantine regulations within the State will not be lifted for at least 60 days after the disease is stamped out. It may be a year or even longer before we are rid of this scourge! The least that any of us can do is to aid in every possible way to shorten the period of quarantine.

The economic loss is being felt in many lines only indirectly connected with agriculture. It would seem, indeed, that we have had enough burdens to bear on account of the necessary regulations imposed by our own officials without having to suffer unreasonable embargoes placed by other States. This is a side of the question upon which we can reasonably express indignation.

DON'T HIT A MAN WHEN HE'S DOWN!

When our sister States declare an embargo against perishable food products which in the history of the disease have never been known to carry infection, it seems as though they are adding insult to injury!

Just as "them that has, gits," so those who are experiencing trouble seem to get a double dose. "It never rains but it pours!" We are going to come through this emergency safely and with a record of determined and sustained effort seldom if ever equaled in American history, but it doesn't help any to have others hit us when we're down!

WHAT'S NEW? *Keeping Abreast of* Agricultural Progress

Tractor Course Is Canceled

OWING to the epidemic of the foot and mouth disease, the University of California has canceled the Farm Machinery and Tractor Short Course which was scheduled at the University Farm, Davis, May 12-17. This course is to be an annual affair and those planning to attend may be assured that a similar course will be conducted in May, 1925. —L. J. FLETCHER, Division of Agricultural Engineering. b

Tie Wool With Paper

WOOL growers are urged by the U. S. Department of Agriculture to use only paper twine for tying fleeces for market, because twine made of sisal, jute or hemp sheds fibers which cannot be separated from the wool and injures the latter's value. These fibers do not take dye readily and therefore show up in woolen cloth.

Broadcasting Farm Facts

THE Washington Agricultural College is broadcasting, by means of the radio, farm information, music and lectures on topics of general interest, giving three programs each week, 7:30 to 8:30 in the evening. Recent talks dealt with questions connected with the late war, soils, gardening, potato growing, cow testing, milk campaigns, farm bookkeeping, clover and alfalfa growing.

Surplus of Farm Laborers

THE supply of farm laborers in the Pacific and Mountain States exceeds the demand 10 per cent, according to the U. S. Department of Agriculture. In the Central States the supply about equals the demand, while in the Eastern and Southern States there is a shortage of 11 to 16 per cent. The latter condition is attributed to building activity and Northern negro migration.

Insuring Peach Profits

BEGINNING with 6000 trees, the Georgia Peach Growers' Exchange has started an insurance movement which is expected soon to include half of the 12,000,000 bearing peach trees in the State. One of the largest insurance companies in America has issued policies which protect grower members from both production and marketing losses. Because of the perishable nature of the crop, it was felt that such protection was a necessity and the efficiency of the Exchange made it possible to procure at reasonable rates the needed policies.

Food Buyers Are Bearish

WHOLESALE dealers in canned fish, fruits and vegetables are buying smaller quantities this spring than last, in the expectation of lower prices, according to a prominent food broker of Los Angeles. This belief is based on the fact that for several years the general trend of prices has been downward and—judging by what happened after the Civil War—prices for some years will continue to decline. A dry winter, foot and mouth disease and coming presidential election all are cited as contributing causes.

Improved Sweet Sudan

SWEET Sudan grass, said to be a cross between ordinary Sudan and sweet sorghum, has been tested in Lubbock County, Texas, and is reported to have yielded 50 per cent more than the common variety and to be greatly relished by all kinds of livestock. One farmer did most of his spring work with horses fed entirely on this plant, which he claims kept them in good condition. Sweet Sudan on low ground attained a height of nine feet.

Overestimate Broccoli Crop

LATEST reports from the Umpqua Valley, Oregon, give 225 carloads as the amount of broccoli shipped from Roseburg this season, with 300 cars as the probable total crop. Early estimates placed the crop at 500 carloads, affording a good example of the way farm crops often are overestimated, which tends to demoralize the market. The Umpqua broccoli plantings for next year will be between 4000 and 5000 acres, according to present predictions.

Chinese Improve Dairy Cows

STRIKING results are being secured in China by crossing purebred Holstein bulls from Washington with native cows. The latter very much resemble the poorest scrubs in this country, yet their owners are slow about taking advantage of the opportunity to obtain better stock.

Due to superstition the Chinese use little cow's milk. Mares sometimes are driven through the streets of cities and milked as customers desire. Dairy milk is sold to foreigners at 15 cents a pint. As China has a population four times as great as the United States, the opportunity for developing there a demand for dairy products and animals is considered very great.

New Government Butter

BUTTER made by a new method devised by the U. S. Department of Agriculture will keep much longer than the ordinary product, according to Dr. Larson of the Dairy Division. This process was tried out on a large scale in making butter for the navy and was found entirely successful.

As a result, the Minnesota Co-operative Creameries this year are making 50,000,000 pounds of butter by the new Government process, which the manager considers one of the greatest dairy discoveries of the present time. Another large butter manufacturer is starting five big factories to make the new long-keeping butter.

Want War Finance Money

IDAHO farmers are wondering why they cannot obtain loans from the War Finance Corporation, which was organized in 1921 for the purpose of loaning money to farmers with which to buy livestock. As a result of several months' investigation, J. E. Nessly has decided that it is because the money was loaned to big cattle and sheep companies.

Senator R. N. Stanfield of Oregon is reported to have received $670,000 of Government funds, while the Portland Cattle Loan Company, a $1,400,000 concern, loaned millions to the Crane Creek Sheep Company and other large livestock interests, beginning immediately after the War Finance Corporation began to function, Nessly claims.

As a result of these disclosures, the Ada County (Idaho) Grange demands a thorough and complete investigation of the activities of this Government money-lending company.

Prilly Makes Milk Record

CALIFORNIA'S new leading Holstein cow in yearly butter production as a junior three-year-old is Fairmount Colantha Prilly of the Bridgeford Holstein Company at Patterson. This promising producer recently finished a year's test with 1198 pounds of butter and 25,571 pounds of milk to her credit.

Fred Hartsook's Carrie Tritomia Ormsby at Lankershim is the new State champion for both seven and thirty-day butter production as a senior two-year-old, having in one week given 413 pounds of milk containing 33 pounds of butter and in one month 1954 pounds of milk containing 123 pounds of butter.

Grimm Leads Alfalfa Race

GRIMM alfalfa rapidly is superseding all other varieties in Oregon, ten times as much seed of this kind being planted in Klamath County this year as of all other sorts and an even larger percentage in Crook County.

"One hundred thousand acres of Grimm alfalfa in the Willamette Valley" has been suggested by the State Experiment Station as a goal for Extension Service workers.

The Union County Station has taken a leading part in testing and introducing Grimm alfalfa, having sold through county agents last year 43,000 pounds of seed of this improved variety. It is proposed to make Grimm the standard Oregon alfalfa.

THEY SAY

"Uniform Inspection Needed"

O. E. BREMNER

Horticultural Commissioner, Sonoma County

O. E. BREMNER

CALIFORNIA'S splendid system of horticultural inspection needs to be co-ordinated by a uniform application of laws and regulations, in the opinion of O. E. Bremner, enterprising Sonoma horticultural commissioner, who this year condemned over a quarter million plants.

As an illustration of the discrepancy which now exists in this respect some counties reject an entire shipment of trees if any are affected with crown gall, while other counties reject only the diseased specimens.

"Another example of the variation in inspection," Bremner points out, "is the dipping of all grapevines shipped into some counties, in order to kill any possible phylloxera infestation, while other counties do not require this treatment of vines grown on American varieties resistant to this pest.

Here in Sonoma County a grape nurseryman grows between 300,000 and 500,000 of such vines every year and sells them at $125 per thousand, compared to $25 for ordinary vines. After paying the former high price, a purchaser naturally objects to having his vines subjected to a process which usually kills 40 per cent of them.

In order to comply with postal regulations, purchasers of nursery stock in most California counties are notified upon the arrival of plants to deposit sufficient postage to pay for having the shipment sent to an inspection point and back again. This generally results in a loss of two to four days and often occasions serious inconveniences and loss.

"In order to overcome *(Continued on Page 10)*

"Give Me the Desert for Pears"

Prominent Jurist Writes Revealing Account of His Experiences in Growing Fruit—Describes Opportunities

By JESSE OLNEY
Superior Judge, San Bernardino County

FIVE years ago I had the temerity to give up my profession and the routine of office life and move to the desert, where I took up a homestead in Victor Valley, near Adelanto (San Bernardino County).

I was fortunate in securing a quarter section of some of the best land on the west side, where the soil is ideal for the growing of pears, with a deep clay subsoil especially well adapted to the conservation of moisture. It is located on the mesa with a gentle slope, where there is little likelihood of being caught by a late frost.

After looking the situation over thoroughly I decided to plant a Bartlett pear orchard. My first consideration was water, for "water is king" on the desert. Dry farming is impracticable and one should be prepared to put down a well and install a pumping plant, for one must expect to spend as much in development outside of the cost of the land as in any other locality.

I secured a good driller, one familiar with desert conditions and having a complete outfit. Even then progress was slow but at the end of three months, after drilling five hundred feet, he had made a well that proved to be a big success. I find many people avoid a desert proposition because of anxiety about water, and while there are various dry holes, yet in many cases people got good water with their first and only bore.

Not many go as deep as 500 feet, but on striking water at 200 or 250 feet, stop there. To my notion this is a great mistake, for the better water gravel is lower down.

I have pumped my well five months each year for four years and have never had to pull the rods of the pump or renew the leathers and expect to get through another like irrigating season without doing so, for I have had no sand to contend with. I believe there are few pumping plants even in less sandy territory that have such a record.

After clearing 50 acres of land (which was easy and inexpensive) I put up a substantial fence to keep out both rabbits and cattle, a necessity which no one on the desert should overlook. The installing of a modern up-to-date concrete pipe line for irrigating was a considerable expense but excellent concrete pipe is manufactured nearby, and the total expense was no more than elsewhere.

From the main pipe line running north and south, I ran five laterals east and west 208 feet apart, so that I irrigate 12 trees in one row from one stand. I secured as good nursery stock as could be had from various nurseries, and it has been a great pleasure to plant and watch these trees grow.

The first year I attempted to prune the young trees myself but realizing that a complete business man does not [illegible] I secured for a [illegible] pruner and [illegible] Here a [illegible] heart to [illegible] trees with a heavy, deep-tillage cultivator I have cultivated to a depth of eight or nine inches, varying the depth, and at my next cultivation expect to go deeper. During the summer months when the heat is at its maximum and sitting on the tractor is like resting on a red hot stove, I cultivate rarely and stir up the ground as little as possible, just enough to obliterate the irrigating furrows.

Outside of pruning I do all the work myself, except for an assistant to look after the pumping plant during the irrigating season. While it is hot in summer yet sunstroke is unknown and the dry air at this high altitude keeps the pores open; one remains in good healthy condition.

The cool nights assure a good night's rest, and during the leisure moments of the day I can seek the shelter of some of our fine shade trees, which planted around the house make of it a veritable oasis in the desert.

Wistaria, roses and grapevines are luxuriant growers here and protect the house on all sides from the sun. In this age of fireless cookers, iceless coolers, and other modern inventions, there is no reason why one should not be as comfortable on the desert as anywhere—and with very little expense.

People in the past have failed on the desert, but in most cases they would have failed anywhere else. With sufficient capital, perseverance and efficiency, the desert can be (in fact, is being) developed at less proportional cost than higher priced and more favored localities. All desirable Government land has been taken up, but one can obtain very good land at small cost.

The growing of pears on the desert is past the experimental stage, for thousands of acres already are in bearing in the great Antelope Valley and the Victor Valley. It is a well known fact that desert pears ship better and keep better than those in the coastal region, frequently top the market, and when placed in cold storage keep perfectly until Christmas, when they command a high price.

Enthusiastic Pear Grower

Judge Jesse Olney (left) is a staunch booster for the desert country as a fruit district. Upper view shows a winter scene in the Victor Valley, with young pear tree in foreground. Just a few miles below this snow scene orange trees were blooming in the warm valleys.

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Experiments With Roquefort

How Famous Cheese Is Produced Abroad—Recent Discoveries by American Scientists—Interesting Possibilities

By S. A. HALL

Dairy Division, U. S. Department of Agriculture, Washington, D. C.

ROQUEFORT is a French, mold ripened cheese, the original being made from sheep's milk and has been known for twenty centuries. Pliny in his book on natural history referred to this cheese (or cheese of this type) as "the cheese most esteemed at Rome," and said also that this cheese was used by peasants of France in their ceremonial repasts as early as 500 A. D. Today, nearly the entire world's supply of Roquefort cheese comes from Aveyron, in Southern France, the United States alone importing over 1,500,000 pounds in 1922 and 1923.

The cheese is made principally from sheep's milk, and all the milk used for this cheese is produced within a radius of fifty miles of the small town of Roquefort, to which it is sent to be cured in caves. There, too, are the headquarters of several firms that largely control the sale of the world's supply of this cheese.

Sheep have been bred for centuries in the vicinity of Roquefort, for making Roquefort cheese, and it is not uncommon for one sheep during a six months' period of lactation to produce milk enough to make 35 to 45 pounds of cheese. In 1908 the milk from 450,000 of these sheep produced 19,845,000 pounds of cheese. It is doubtful whether such a strain of sheep can be found in the United States, especially in sufficient numbers to warrant the establishment of a similar industry in this country.

In Roquefort there is a peculiar rock formation in which there are caves and grottoes connected with one another and with the outside by numerous channels. Through these moist channels there is vigorous circulation of air, causing a low temperature as a result of evaporation. The temperature and humidity of the caves remain quite constant the year round, so that these natural conditions, together with the ventilation, are favorable to mold growth and to the ripening of Roquefort cheese.

USING COW'S MILK

Inasmuch as the supply of Roquefort cheese is automatically limited by the supply of sheeps' milk, and as this milk is produced in limited regions, people turned to substitutes, such as cow's milk, to manufacture this cheese. The quality of the product from cow's milk, however, did not equal that of the Roquefort factories, and the French court decreed the name Roquefort should not be used for substitute products, but that it be labeled "Blue Cheese," while American merchants call it "Roquefort Cheese from Cows' Milk."

France, however, was not alone in the making of Roquefort cheese from cow's milk, as similar attempts were made in Germany, but failed. More recently, however, the Dairy Division of the U. S. Department of Agriculture and the Storrs Experiment Station in 1914 studied the possibilites of such an industry.

Representing the Dairy Division, U. S. Department of Agriculture, Dr. Charles Thom provided all the pure cultures of Roquefort (Pencillium; Dr. Jas. N. Currie supervised the chemical investigations, and Mr. K. J. Matheson made all the experimental cheese and looked after the curing conditions.

Dr. Currie concluded that the Pencillium Roquefort (roquefort mold) produced an enzyme that hydrolized the fatty acids and their salts, causing the characteristic burning effect that Roquefort cheese has upon the tongue and palate. Later, Dr. Currie, in his analysis of the composition of Roquefort cheese fat concluded the differences between the fat of typical imported Roquefort cheese and the fat of cows' milk were not sufficient to warrant the exclusive use of sheeps' milk in the manufacture of this type of cheese. However, it is evident that a sheeps' milk cheese will have more of the peppery taste than a cheese of the same richness made from cows' milk.

SPECIAL REFRIGERATION

Soon after this work at Storrs was concluded Mr. K. J. Matheson continued the Roquefort work at the Grove City Creamery, Grove City (Penn.), where the Dairy Division, U. S. Department of Agriculture, determined the practicability of their experiments by production on a commercial scale. Here insulated curing rooms were constructed and provided with certain conditioning apparatus and refrigeration, which made it possible to approximate the conditions found in the caves of Roquefort. By the use of such equipment, considerable cows' milk Roquefort cheese of good quality has been, and still is being made and marketed successfully.

The method that has been found to be advantageous is that outlined by Mane, but because of the difference in the nature of cows' milk and sheeps' milk, some modification of the process is advisable. The following is a brief outline of the method followed at the Grove City Creamery by Mr. Matheson: The milk used in making Roquefort cheese should test at least 4 per cent fat. After starter was added and milk was ready to set, it had an acidity of from .20 to .23 per cent. The milk was heated to 84-86 degrees F. before adding the rennet.

The curding required about two hours, although this depended upon the acidity

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of the milk. After salting for five days the cheese was cut into lozenges about 2-3 inch square, and after remaining in the whey for ten minutes the curd was dipped upon a draining cloth. The cheese remained upon the cloth for about one-half to three-quarters of an hour and then was placed in special forms. These forms are 8 inches in diameter and 6 inches high, and have six rows of perforated holes. The holes are about an inch apart, and are one-eighth inch in diameter.

While the cheese is being placed in the form, the Roquefort mold, Roqueforti Penicillium, is sprinkled upon the curd and is allowed to drain five or six days at a temperature of from 60-70 degrees. During this time it is necessary to wash the cheese carefully each day.

The cheese then is salted at a temperature of 45-50 degrees F. This is done on two different days, usually with a day intervening between the first and second salting, the salt being rubbed upon the surface of the cheese and not sprinkled upon the curd. Each cheese, when fully ripe or cured, should contain from 3½ to 4½ per cent salt. About ten days to two weeks after the salting process, the cheeses are punched with a rod about one-eighth inch in diameter. Each cheese is punched from 30 to 40 times and then placed on end and allowed to remain at a temperature of about 45 degrees for two to three months. The humidity of the curing room should be sufficiently high to prevent drying out excessively during this period. It is also necessary during this period to scrape the cheese from time to time.

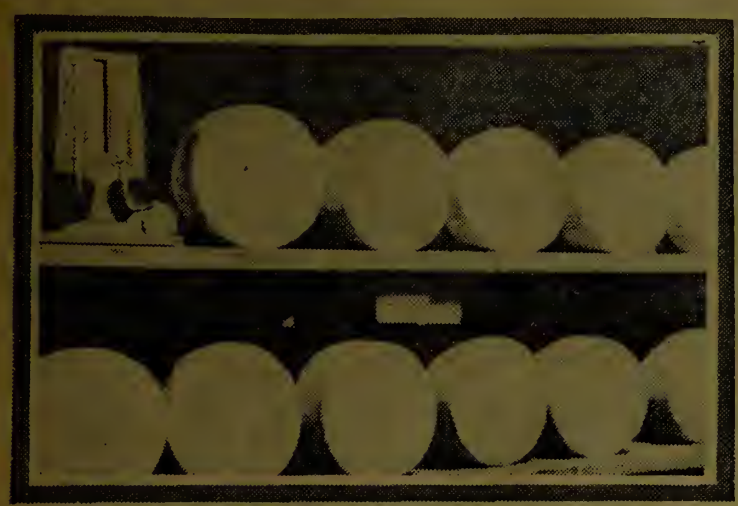
When the cheeses have a good development of mold, they are wrapped in tin foil and parchment paper and allowed to continue their ripening. When ripe they are 7½ inches in diameter, 3¼ inches thick, without any definite rind, and weigh between 4 and 5 pounds. They should be more or less soft and contain plenty of blue mold, which gives the characteristic peppery flavor.

Because of the ideal curing conditions available at Grove City, Penn., Matheson was able to overcome the most common defects of Roquefort cheese made from cows' milk, such as high moisture content, too little or too much salt, the lack of mold, and lack of piquancy. The only essential quality of Roquefort cheese he did not have was the fine white color, the chief criticism being that the cheese was too yellow.

This defect has been partly overcome by making cheese at periods of the year when the cows were not on natural pasture, but now with the cow's milk Roquefort (or so-called "blue cheese") being imported from France, this criticism will be eliminated, as the "blue cheese" is just as yellow in color as the cows' milk cheese made in the United States.

Due to the success of Roquefort cheese from cows' milk in the East, the Dairy Industry Division, Branch of the College of Agriculture, University of California, Davis, asked the Dairy Division, U. S. Department of Agriculture, to co-operate with them in establishing the process of manufacturing Roquefort cheese here in California, for the purpose of aiding the goat breeders who have no way of disposing of their surplus milk.

The writer was associated with Mr. Matheson at Grove City, and has been carrying on this work at the Branch of the College of Agriculture at Davis, using goats' milk in place of cows' milk. The many people who have sampled the Roquefort cheese from goats' milk consider it equal to the imported. The details of this work will be published at a future date.



Roquefort curing at University Farm, Davis

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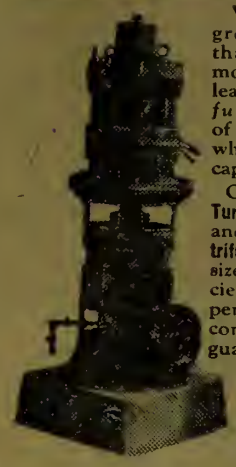

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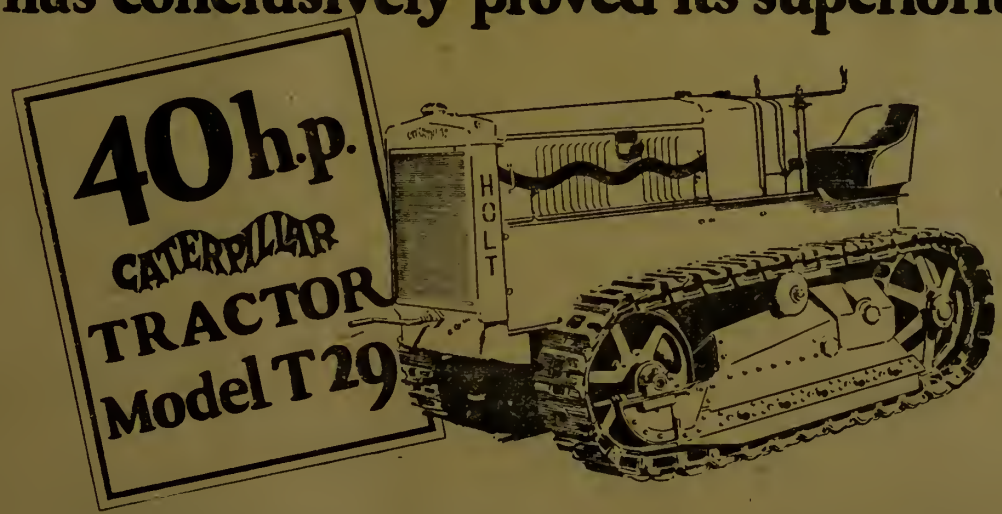

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OUR BACK-TO-LAND PLAN—We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land; deep, rich, tried soil; complete irrigation with cheap water; thorough drainage; rail, water and highway transportation. Write owners, SUTTER BASIN COMPANY, California Fruit Bldg., Sacramento, Calif.

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PIGEONS—Selected Silver King youngsters for sale. JAS. A. AVERY, Napa, Calif. R. R. 1, 704.

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LAWNSHOWER SQUARE SPRAY SPRINKLERS distribute water uniformly over a large SQUARE AREA, reaching CORNERS of lawn or garden without flooding ridewalks and wasting water. Cast brass. Price $1.25 post paid. Money refunded if not satisfactory. LAWNSHOWER MFG. CO., 727 Tennessee St., Vallejo, Calif.

"FOR BETTER DELPHINIUMS" third issue on press. Reserve copy. 1st and 2nd numbers sold promptly on announcement. 50c. From 230 Bay Vt. St., San Rafael, Cal.

Starting Avocado Grove

LAND east of San Diego is suitable for avocados, providing the soil is fairly deep and good, the location practically free from frost and water for irrigation is available, states J. Eliot Coit, in reply to an inquiry from Howard Hutchins, San Diego. Avocados will stand about as much frost as lemon trees and they need the same amount of water.

Would suggest the following varieties: Fuerte, Puebla and Spinks. If the land is quite free from frost, Dickinson, Sharpless, Linda and Queen may be grown.

The trees should be set about 24 feet apart. Holes should be dug two feet wide and deep and filled up with top soil. After planting, make a basin three feet wide and mulch the first year with bean straw or litter of some sort. If you have chickens, you will have to fasten the mulch down with wire netting and pegs.

The trees should be watered about every three weeks. Pruning is not very important and amounts to little, aside from keeping suckers from the trunk. It is a good plan to whitewash the trunks at time of planting, to prevent sunburn.

The trees should come into bearing at four years of age. Berries or vegetables may be grown between the trees for a few years.

WHERE BREAD MONEY GOES

Although the farmer gets only $1.50 for raising the wheat contained in 100 average loaves of bread, bakers receive $4 to $6 for baking and selling services, according to the U. S. Department of Agriculture.

Observations on Citrus Culture in Sicily

(Continued From Page 3)

any suspended citrate caught by rough filtration.

The wet citrate is shoveled into metal trays and placed in a closed stone room, with a vent at top. In this room is a large iron basket of burning charcoal or coal which gives heat for drying the citrate. By the way, the drying of citrate is very inefficient and could be greatly improved upon by following the design of any of the more successful dehydrators of California.

The dry citrate is delivered to the Camera Agrumaria which in turn sells it to a factory in Palermo or exports it. I shall describe the manufacture of the citrate acid from this citrate later.

The depulped halves of lemons are placed in large wicker baskets and wet with water by temporary immersion in a tank of cold water. They are allowed to stand over night to permit the cells to absorb water and become turgid and thus put in proper condition for expression of the oil.

The half rind then is hand pressed into a sponge by several powerful and quick applications of pressure from the palm of the hand. The operator sits on a low stool with a large bowl between his legs and the sponge on a wooden crosspiece above the bowl. The essential oil and some juice are taken up by the sponge. This is wrung out occasionally into the bowl. The bowl possesses a depression below the lip, into which the juice settles as the separation of the oil and juice is made by flotation over the bowl lip after the bowl is sufficiently filled.

The oil is allowed to settle a short time and then is filtered through paper to give a brilliantly clear light amber colored essential oil. This is stored in large copper flasks, securely corked to exclude air. Metal excludes light, which is fatal to the keeping quality of lemon oil. A ton of lemons is said to yield about 8 pounds of essential oil.

In some factories, particularly near Messina, the oil is extracted from the whole lemons by means of machines so designed as to prick the oil cells of the lemons and liberate the oil. This is washed from the fruit by a spray of water and the resulting mixture separated by a milk centrifugal in the same manner that cream is separated from milk. The machine-made oil costs less to produce but is inferior in quality to the hand-made oil, because darker in color and poorer in flavor. About 10 to 15 per cent of all essential oil in Sicily is now machine made. It is blended with the hand made oil before marketing.

In Palermo is a large citric acid factory known as the "Fabrica Chimica Arenella" (Arenella Chemical Factory). It was formerly owned and operated by Germans but was thoughtfully "donated" by them to the Italians during the war by the simple procedure of seizure by the Italians as a war prize. The nearest the Germans have been to it since was to shell it from a submarine during the war.

The citrate as received in [illegible] wooden casks is first ground, then [illegible] decomposed with sulfuric acid and [illegible] by subsequent filtration, concentration and decolorizing processes citric acid crystals are obtained. The plant [illegible] to date and efficiently and skillfully operated, and if there were a good market for the acid undoubtedly would be highly profitable considering the small initial investment of the present owners.

But the market is "shot to pieces" and hence the plant cannot be said to be extremely prosperous. It does, however, manufacture tartaric acid from [illegible] lees on a very large scale and finds a better market for this product.

The Sanderson Company of Messina now is contemplating the commercial manufacture of citric acid. It [illegible] a world-wide trade in essential oil and should be able to dispose of considerable refined citric acid, because the [illegible] essential oil are in most cases users [illegible] of citric acid.

In general, the Sicilian lemon grower is not particularly happy or particularly prosperous. Nevertheless he continues to "peg away" and hope for better times. He feels California compe[illegible]

Above—Packing lemon peels in brine for export to England and America. Lower view shows a pocket edition draft animal in Palermo

at every turn and hears much of California prosperity" consequently is [illegible] desirous of sharing it with us.

But many more like him throughout Europe and Asia have the same [illegible] we can not, therefore, hope to take [illegible] of them that want to come [illegible] for then we would be as badly off as they are at present. Neither do we want his fruit fly sporting in our [illegible] cidiuous and citrus orchards [illegible] "mush" of our fruit, and for this reason his cup of woe is doubly filled. It is certainly tough to be a Sicilian but perhaps a better day is coming for him. Let's hope so.

Two Good Avocados

THE Spinks avocado is a good [illegible] for home planting because it [illegible] bears well, even if planted alone. [illegible] It will endure more frost than [illegible] other kinds, I doubt if it would [illegible] where temperatures 10 degrees [illegible] freezing occur.

In such a locality the Mexicans [illegible] etie are the only ones likely to [illegible] Suggest you try Northrup, as this will bear when planted alone, [illegible] much frost and heat and frequently produces two crops a year. The fruit is thin skinned and not suitable for market but is of high flavor and [illegible] factory for home use.—J. ELIOT [illegible]

STRAWBERRIES BY THE BA[illegible]

Puget Sound strawberry growers [illegible] year sold 7[illegible] barrels of fruit, [illegible] and frozen, this having been found [illegible] most economical way to [illegible] distant markets.

Views Future of Fig Industry With Optimism

Official of California Peach and Fig Growers' Association Gives Authoritative Survey of Conditions—Makes Recommendations

By IRA J. CONDIT

WHILE present market conditions for figs and fig products are somewhat discouraging, the same is true of a number of other fruits and farm crops.

We can blame overproduction, economic depression, unsettled European conditions, lack of sufficient tariff and poor distribution for the present condition of the fig industry. The fact remains, however, that people like figs in practically all forms; that figs are healthful; that millions of people in this and other countries now eat very few if any figs because they do not know about them or cannot get them. These facts being true, the future of the fig industry appears to be as bright as that of most other California fruits.

In my opinion three things at least should be emphasized as necessary to insure a measure of prosperity for the fig industry in the future: First and foremost, the production of better quality figs; second, the extension of the market for fresh figs as well as the canned and preserved product; third, the development of dried fig by-products which will keep the smaller fruit and lower grades of figs off the market in their original form.

Figs have been produced commercially in California for over forty years. Trees in borders and in orchards in general have been profitable producers. Numerous plantings during the past ten years have been in units of hundreds and even thousands of acres, and prospects seem to indicate extensive new acreages for 1924 and 1925. Is this large increase in the acreage justified? What are the dangers of overproduction? These and similar questions are in the minds of growers and marketing agencies. Prophets do not seem to be as numerous nowadays as in the past, but a presentation of facts may aid in obtaining a clearer vision of the industry as a whole.

ESTIMATE OF ORCHARD AREA

According to the figures of the State statistician, there were in California in 1923 15,693 acres of bearing fig trees and [illegible]034 acres of non-bearing trees. The estimated planting for that year was 5240 acres, making the total acreage 55,027. Of this acreage 53 per cent is estimated to be planted to Calimyrnas, 30 to Adriatics, 11 to Missions and 5 per cent to Kadotas. However, recent heavy plantings to Kadota figs probably bring this figure nearer to 10 per cent of the total [illegible].

Judging from these figures some statements seem to show that figs are from [illegible] to 10 times overplanted in relation to present production of dried figs.

[illegible] in the past have been marketed [illegible] in the dried form, and all [illegible] been given to tonnages of [illegible]. Last year there were canned [illegible] 2000 tons of fresh [illegible] have been well re[illegible] Growers figure [illegible] fresh [illegible] amount which [illegible] price [illegible] than for [illegible] of [illegible]ables [illegible] to be one of [illegible] presenting [illegible] [illegible]

product and should provide an immense outlet for fresh figs in the future. To what extent the costs of production and harvesting can be reduced by the grower, the manufacturing and packing methods be improved and simplified by the canner, and the distribution made more effective by the marketing agencies, remains for this and the next few seasons to disclose.

LARGE TONNAGE PRESERVED

About 500 tons of Kadota figs were put up in the form of preserves during 1923, the preserved fig containing 65 per cent of sugar as compared to 40 per cent in the canned fig. The extensive plantings of Kadota figs are due almost entirely to the good demand for the fresh figs for preserving purposes. The preserved fig is in the luxury class and such a product will not provide an outlet for as large a tonnage of figs as the canning process. The Calimyrna fig has not been used for preserves on account of its large size and its tendency to go to pieces during the processing.

The Kadota so far has not been canned in a light syrup on account of the demand for preserved figs and its lack of flavor or character in the fresh fruit as well as in the canned product. California growers should seriously consider the fact that extensive acreages of preserving figs are being planted in Texas where there is cheap land, cheap labor, and a short haul to the large Eastern markets.

Canned and preserved figs are not the only promising products to consider, however. Carload lots, as well as numerous small shipments, of fresh figs have been made to the Middle West and to New York since 1921. The best methods of picking, packing and shipping gradually are being worked out and fresh figs can be expected to appear in distant markets in larger quantities each season.

Fresh fig jam, crushed fruit for pies, dried fig paste for bread and bakery purposes, glace and candied figs, fancy pulled and pressed figs in cartons—these are examples of the various products which offer an outlet for our fig crop. New products, however, require special sales efforts and can not be expected to jump into immediate popularity.

EUROPE SERIOUS COMPETITOR

One of the discouraging features of the fig industry at present is the ability of the European exporter to send large tonnages of dried figs to this country and undersell California figs on the Eastern market. There were received in this country from the Old World 4060 tons of dried figs in October, the same in November, 4400 tons in December, 2390 tons in January, and 790 tons in February, the imports for the five months totaling 15,700 tons as compared to the California production for 1923 of 7500 tons. Considerably over half of these figs came from Smyrna. Various measures for relieving this situation are possible and some are being considered.

The subject of fig varieties has been much discussed in the past and is still a fertile field for argument. The Calimyrna led in number of trees planted for several seasons following the discussion held at the first Fig Institute held at Fresno in 1917, over the comparative merits of the Adriatic and the Calimyrna. During the past four or five years, however, the Kadota has superseded the Calimyrna in favor—judging from the acreage planted.

This is due to various factors, chief of which are the following: The early and heavy bearing habit of the Kadota tree; the resistance of the fruit to such troubles as splitting and souring; the present good demand for the fruit and the resulting profitable prices; the possibilities of marketing the product in fresh shipments, in dried fruit and in other forms than preserves; and especially to the activity of land promoters who seem to be able to figure exorbitant profits from Kadota orchards.

The Kadota undoubtedly has considerable merit as a commercial variety, but serious marketing difficulties are almost sure to occur when the acreage in any fruit increases so rapidly as has this one in recent years.

BETTER VARIETIES NEEDED

Both the Calimyrna and the Adriatic figs have serious faults. Calimyrna figs split badly in some sections and the fruit often sours and rots even under favorable climatic conditions. The tendency of the Adriatic fig to ferment is well known; this trouble either entirely ruins the fruit for the market or reduces the grade of the dried product. Recent investigations seem to indicate that the fig insect which makes it possible to produce the Calimyrna also is responsible for introducing disease organisms into the fruit, along with the beneficial pollen.

Undoubtedly investigations under way will find some means of overcoming these troubles, but they emphasize the prime necessity of developing new and better varieties of figs for California conditions. This work has been started by State and Federal experts, and a variety orchard containing over one hundred kinds of promising figs now is growing near Fresno. A white fig as good as the Black Mission is one of the desirable seedlings sought for.

Upper view shows a dry yard used for Adriatic figs near Fresno, Left, fresh Calimyrnas, packed in fruit cells for local shipment from Ceres (Stanislaus County)

Avocado Growers Meet

THE annual meeting of the California Avocado Association will be held on May 16 and 17 at the Vista Del Arroyo Hotel in Pasadena.

The event will commence with an exhibit of fruit and trees on the afternoon of Friday, May 16. The banquet will be held in the evening of Friday, May 16. The morning of Saturday, May 17, will be given to discussion of avocado problems, and on Saturday afternoon will be held the business meeting of the association.

Following is a tentative program for the meeting: Address by Knowles Ryerson, including a discussion of the ill effects of overbearing on avocado trees; address by Carl Newman, "The Problem of Windburning"; presentation of the avocado marketing agency, the California Avocado Growers' Exchange; discussion of the problem of standardization by Mr. Goss of the University of California.

The annual meeting of the Avocado Growers' Exchange will be held on the afternoon of Friday, May 16, at 2160 East Seventh street, Los Angeles.

All those interested in the marketing of avocados are welcome to attend this meeting, whether members of the Exchange or not.—GEO. B. HODGKIN, Secretary.

Getting Rid of Ants

WHAT is the best and easiest method of driving away ants about the house? They come from a nest in the yard, under the doors and into the kitchen.—MRS. J. R. C., SAN DIEGO COUNTY.

Although it is possible to prepare home mixtures of poison for the control of this troublesome pest, it hardly pays to do so because there are efficient preparations on the market. One of the simplest to use is in the form of a semi-liquid known as "ant-paste" which seems to work like magic. Simply apply small quantities where the ants are running and along their pathway, and in a few hours they will disappear. These preparations may be obtained at any drug or general store.

FREEZING HUCKLEBERRIES

Large quantities of Puget Sound huckleberries are frozen in barrels until needed for pie filling. It has been found that the fruit retains its flavor better when preserved in this manner than when cooked and sealed in cans. The price paid for wild huckleberries at Portland and Seattle varies from 4 to 20 cents a pound.

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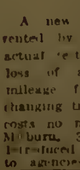

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Is There a Way Out for Irrigation Settler?

(Continued From Page Three)

sion did a great deal of work at the national capital, but in order to get as much first-hand information from the settlers as possible, a series of meetings was conducted at Salt Lake City in January. A total of 175 representatives of water users' association attended the meetings and furnished much valuable information to the commission.

The national irrigation project at Orland stands at the head of the list in the matter of repayment of construction costs and is one of the most successful examples of Government reclamation work to be found anywhere. The Salt River Arizona, project also is in good shape.

"Just what method do you recommend for putting an irrigation project on a paying basis?" Mead was asked.

"In the first place," he replied, "all parts of a project should be expertly examined and studied in connection with local conditions, in order to determine what kind of farming likely will prove most profitable. The charge for water should be in proportion to the value of the land, because more money can be made in farming some tracts than others.

"In the next place, only those who have a good fighting chance of success should be allowed to settle on the land. A settler should have at least $2000 capital.

"A competent agricultural superintendent should have charge of settlers and help them develop the land and put it on a paying basis. This leader should serve in somewhat the same capacity as farm adviser or county agent, directing and supervising all activities of the colony under his care.

EXPERT MANAGER NEEDED

"He should assist newcomers in laying out fields, orchards and gardens and in putting up buildings and buying stock, seed and equipment; help decide what varieties of fruit and other crops should be grown by the community and what breeds of birds and animals should be raised.

"Assistance should be given in the formation of breed associations, telephone companies, marketing associations and other co-operative enterprises. He should assist in the activities of these organizations and help them to succeed.

"This agricultural superintendent should also lend a hand in the building of schools, churches and community halls and help them to function successfully; act as labor agent for both employer and employe; be the confidential adviser of every settler who needs and will accept help in his family and financial affairs—in short be a real community leader in every sense of the term."

"Sounds fine," admitted the writer, "but what proof is there that this system would succeed?"

"The fact that it is succeeding, not only in Australia, but right here in California, where it is being carried out on the State land settlements at Durham and Delhi."

"Aren't the Delhi settlers having some trouble?"

DELHI HAVING TROUBLE

"Yes, but that is largely the result of hard times and not requiring ex-soldiers to have adequate capital. Rehabilitation men or 'trainees' who were receiving $125 to $150 a month from the Federal Government agreed to pay the State $50 a month for three years, making a total of $1800, which was to take the place of initial and yearly payments. It was thought the men could live on the remaining $75 to $100 a month until their land was made sufficiently productive to support them."

That Washington officials are beginning to realize the necessity of adopting the "California plan" is indicated by the following statement recently issued by Hubert Work, Secretary of the Interior:

"An entirely new policy of national irrigation must be adopted. Farmers must be given first consideration. They must be taught intensive cultivation of small farms, instructed in the proper use of water; told what to raise, warned against growing undesirable crops and assisted in diversifying and marketing.

"Reclaimed farms must be electrified. Electricity should be made to operate household utensils as well as agricultural equipment. In fact, the first concern of the Bureau of Reclamation must be the mothers on the projects and through them the homes, children and schools. Our projects must be humanized by the establishment of social centers, schools and churches."

During our conversation Dr. Mead received a copy of a new bill which Senator McNally had introduced, providing that all future reclamation projects be examined by experts from the Departments of Commerce, Agriculture and Interior.

In his recent message to Congress President Coolidge recommends that the Secretary of Interior be given power to suspend, readjust and reassess all existing charges against water users. The latter demand that all accrued penalties and interest on construction costs be cancelled and those which have been paid returned.

The substitution of 5 per cent of gross crop returns for cash payments to the Government is favored.

Settlers also favor the appointment of competent agricultural supervisors; the classification of lands and the elimination of those which have no chance of paying out; and demand that the management of the projects be turned over to water users, as well as all assets belonging to the projects.

Secretary Work recommends that the cost of conducting the Washington office of the Reclamation Bureau, which to date amounts to over $3,500,000, be met by the general Government, instead of being charged up to project settlers. In December 12 employees and 15 consulting engineers were dropped, effecting a large saving. An additional saving of $18,000 a year is to be made in the near future by other changes.

GOVERNMENT HEAVY LOSER

In the opinion of the Fact Finding Commission, $18,561,000 which the Government expended in constructing irrigation works never will be recovered while an additional $8,830,000 probably never will be, making a total of over $27,000,000 to be charged off to profit and loss.

Of the losses regarded as certain, the Milk River, Montana, project is debited with $3,000,000, Newlands, Nevada, project, $3,500,000; Yuma, Arizona, project, $1,361,000, with a probable additional loss of $2,700,000 on the enterprise last named.

Five per cent improvement loans, payable in 30 years or less and five-year livestock loans are recommended, also that land be exempted from construction assessments until it can be made sufficiently productive to pay its share of such costs.

When first the Government engaged in constructing irrigation works it was intended that as soon as a project was completed it would be taken over by the settlers. The Government, however, still is managing all but two of the projects. This has led the settlers to consider themselves wards of the Government, entitled to special privileges, a fact deeply deplored by the commission, which points out that the work in which the settlers are engaged demands a high degree of initiative and independence.

APPLY NEW PRINCIPLE

Instead of requiring all project land to pay an equal share of irrigation costs, the commission recommends that the assessments be made in proportion to the value and productivity of each allotment. This is a new principle in irrigation development, but one which Mead believes to be just and worthy of wide application.

Because of the high estimated cost—$120 per acre—of the new projects which the Government is asked to irrigate, caution is advised and it is recommended no action be taken until the productivity of the land is determined.

In spite of mistakes made in settling national irrigation projects, splendid work has been done and land reclaimed which now produces $175,000,000 worth of crops annually, which is 71 per cent of the total cost of Government projects. The Yakima project converted land valued at 50 cents an acre into farms worth $200 an acre producing annually $7,000,000 worth of new wealth.

The Chinook division of the Milk River project, comprising 24,300 acres, produced under dry farming $102,000 per year. Under national irrigation this yield has been increased to $760,000. The 7800 people living in that section spent $3,462,000 in a single year for Eastern goods, an average of $440 for each individual.

PAY WITH ELECTRICITY

Dr. Mead predicts that with the passing of the present period of agricultural depression and the management of reclamation projects for the benefit of settlers, the latter may confidently expect an era of prosperity.

"The new and great idea in all irrigation enterprises," declares David W. Davis, commissioner of the Bureau of Reclamation, "is harnessing of a river for a three fold purpose: flood control, irrigation and hydro-electricity, with the latter paying the bill.

"It is estimated the entire cost of the Colorado River project can be met by selling electricity. This contemplates the reclamation of 7,000,000 acres, while the Columbia River project will reclaim 4,500,000 acres."

CARING FOR WINDOW BOXES

The earth in a window box should be kept moist, but not water logged, points out Ralph D. Cornell, in reply to a query from R. N. Faulkner, San Mateo. If drainage has not been provided from the bottom of the box, that might account for anaemic condition of plants.

Myrtle may or may not crowd out geraniums, depending on conditions.

Tractor Pulls Posts

I HAD a hundred or so fence posts to pull this season and they were deep in ground as hard as a br[ick] because of drouth, the soil was wet on[ly] three or four inches deep. It would have taken an hour to dig one out by hand, so I took my tractor—which is a high wheel type—and drove up as close to the post as possible, with the hub of the drive wheel just even with the pos[t].

Then I took a strong chain and slipped

the looped end over the post, close to the ground.

Then I ran the other end of the chain up around the wheel and hooked it to one of the spokes. (The chain must be very tight with no slack at a[ll].) Next I backed the tractor very slowl[y]. Up came the post a few inches.

Driving ahead and letting the chain slip down to the ground around the post, I backed the tractor again, this time lifting the post clear out of the ground.

The pull must be up and not sidewise: that is the reason for running the chain up over and around the wheel.—RAY C. GRUHLKE

Garden Paper Mulching

BECAUSE a bed of cuttings could be watered only twice a week, M. Berger, San Mateo, tried mulching the ground with several layers of newspapers, placed eight inches below the surface and punched full of holes. This was to aid in holding moisture in the surface soil. The ground was covered with other papers supported by [...] sticks placed two feet apart. In irrigating, the water was run under the pap[er]. The plants were set in holes punched through the paper and made amazi[ng] growth.

Coolidge on Co-operation

LIKE his predecessor, President Coolidge believes not only in co-operative marketing but in co-operative buying as well and recommends that town as well as country people get together and purchase supplies in [...]

"In agricultural co-operation," declares the President, "there is a [...] opportunity to both the producing [and] consuming groups and we all belong to one or the other [...] of us to b[oth] of them. In the long run, we [shall] be benefited if we can lessen the [pres]ent burdensome costs of conveying [ne]cessaries from producer to consumer."

Inspection Needed

(Continued from Page 5)

this difficulty Sonoma County has [...] depositing at the various postoffices [of] this county sufficient funds to pay [for] these reshipments. We have a [...] arrangement with the express [com]panies, which send plant shipments [to] the horticultural commissioner's [office] for inspection and charge the tran[spor]tation expense to the county.

"We are now trying to work out [an] even better plan, whereby all stock [will] be shipped direct to the county seat [for] inspection and by the commissioner [re]shipped to final destination, the [...] paying the local postage or expr[ess]. San Jose nurserymen have adopted [this] plan, not only sending plants d[irect to] our office in large boxes, but a[ttaching] to each package the local postage [...] tomers not only are saved the [...] and annoyance of advancing post[age for] inspection shipments but get t[heir] plants with the least possible del[ay].

"In many counties of the State [...] the nursery shipping season [...] visit most of the postoffices of [the] county daily, which entails much [...] less work and expense.

"If all the horticultural comm[ission]ers and nurserymen of the State w[ould] meet in a convention and talk [over] these matters, steps doubtless would [be] taken to adopt a more uniform pl[an of] work and do away with much of [the] confusion, needless delay and [...] which now exist in the inspection serv[ice].

Forty Acres Enough If You're Not Afraid of Work

Imperial Valley Family Digs in and Digs Out, All Putting Shoulders to the Wheel

THAT small units, intensively cultivated by families living upon the land, eventually will constitute the Imperial Valley's greatest asset long has been contended by interested observers.

Until recently the Valley has experienced the usual "growing pains" of a comparatively new country — large-scale exploitation, absentee ownership, wasteful methods and bonanza crop gambling.

Encouraging, therefore, is the experience of W. R. and J. L. Hastings, father and son, who are combining dairying and poultry production successfully on their 44-acre farm near Holtville.

Although they have been in the Valley but a short time, they have achieved an average monthly income of $650, according to the testimony of "J. L.," and have been able to produce most of the feed for 30 to 50 cows and 1000 hens.

NO EXPENSIVE BUILDINGS

Probably the principal factor in their success is the fact that they have made practically no investment in equipment. The cows are milked in an open corral, and there are no buildings for the poultry except a straw-covered open shed, equipped with cheaply constructed nests and roosts.

Both hens and cows range in the alfalfa fields, the former being fed partly upon milo-maize purchased from neighbors, and the latter entirely on alfalfa hay, supplemented by the pasture, which is available all winter. Some bran is bought for the hens, and they receive charcoal and grit. Early each morning they are out ranging for bugs and worms.

Another factor which has increased the net income is the fact that no outside help is employed. Father and son do the field work and most of the chores, while mother and daughter-in-law manage the poultry. The latter also helps with the milking when necessary.

In fact, she made a regular "hand" in the hay field, with mower and "buck" rake, during the first summer when they were establishing their Valley home, and this, despite the fact that she had not previously lived upon a farm. The young couple had been married only a month when they reached the Valley.

The Hastings family came west from Oklahoma in search of health. That they have attained the desired goal is indicated by the testimony of the father, who stated he had been practically bedridden for years, yet now is able to perform hard physical labor as readily as his son.

FATHER REGAINS HEALTH

In fact, he states that he and the "boy" (as he calls his husky heir) put up [illegible] tons of hay last summer without other than family help, and did the [illegible]. The Hastings family cannot speak too highly of the health-giving [illegible] of the Imperial Valley climate. The [illegible] left the Valley only 15 days during the hot weather.

[illegible] have accomplished in [illegible] years is truly remarkable, considering they had very little capital to start with, and undertook their project on a "shoestring" while [illegible] by poor health. Around [illegible] the past year it practically [illegible]. When they secured the property, there were no improvements and the land was a waste [illegible].

[illegible] were not doing without [illegible] of the conveniences which some consider necessities, but were quite content [illegible] the necessities they could afford to have.

[illegible] "necessities" [illegible] enterprises that they have licked Old Man Uncertainty to a standstill. The milk is separated and the cream sold to a creamery whose truck calls for it regularly. This leaves the skim milk for the poultry, their heavy production being attributed largely to the quantities of clabbered milk consumed.

The eggs also are picked up by a dealer who calls twice a week and takes three cases at a time. The lowest price received during the winter was 33 cents and the highest, 52 cents. During the summer the prices dropped to 25 and 26 cents. During last November (usually considered the "lazy" month) the egg money ($365) paid for the year's supply of grain!

NO HATCHING DONE

It is the practice on the Hastings ranch to stop feeding grain in July and thus to force the hens into a molt, the aim being to force heavy laying during the fall and winter, thus taking fullest advantage of the Imperial Valley climate.

The poultry enterprise was started with 300 White Leghorn pullets, from a neighbor's flock, and several lots of pullets have been purchased since. The Leghorns were crossed once with heavier breeds but decided the White Leghorns were best able to stand the heat, and to "rustle" part of their feed in the fields.

An experiment with turkeys proved profitable. Mrs. J. L. Hastings bought four turkey hens in 1922 and raised $300 worth of market meat. So encouraging was this experience that last year she repeated the project on a larger scale, raising 300 poults and selling fat turkeys for the Thanksgiving trade at 48 cents a pound, just before the drop in price which featured the Christmas and New Year market.

Mrs. Hastings says she has been successful in making turkey hens lay for seven or eight months. At signs of broodiness she confines the hen without feed for a few hours in a small coop. The eggs are hatched under Leghorn hens.

All these disclosures confirm the suspicions of the observer that agricultural conditions aren't so bad after all! For those who are willing to forego a few comforts for a time, get down to brass tacks and "dig in," it looks as though the door of opportunity is as wide open as ever.

The visitor to the Hastings ranch finds no answer to the "last word" of the busy, buxom young woman who manages the poultry end of the enterprise. "Do you *really* like it here?" we inquired.

"Why, of course!" she answered, "Why shouldn't we?"

The cheapest kind of construction suffices for a poultry "house." The birds roost under this straw-covered shed where the nest boxes also are located.

Very little money is paid out for hired help on the Hastings ranch. Father and son, shown above, do most of the dairy and field work.

Alfalfa "range" may account in large measure for the health and heavy production of the hens. They pick up vast numbers of bugs and

Although a stranger to farm life until she accompanied her husband to the Imperial Valley, Mrs. Hastings Jr. is an enthusiastic "rancher." She manages the poultry department.

Poultry Diseases

Avian Pathology Laboratory at Petaluma Doing Great Work

AT THE avian pathology laboratory at Petaluma, an average of 125 birds per month are given postmortem examinations, for the purpose of learning the exact nature of the disease or trouble with which the fowls were afflicted. Many birds are brought in by ranchers living in the immediate vicinity, where it is estimated that more than 12,000,000 chickens are kept.

A hen which was afflicted with liver disease was being examined at the time of the writer's visit. This trouble, as explained by Dr. D. E. Davis—who has charge of the work—was caused by feeding too much protein. The result was the formation of too many yolks, which burst and overworked the liver. Ranchers who push their hens too hard in an effort to get as many eggs as possible out of them, often find their birds afflicted in this manner.

Various experiments, tests and demonstrations are carried on at the laboratory, in addition to the postmortem work. Last year, when the station was in charge of Dr. J. R. Beach, it was proved that nutritional roup was caused by the lack of vitamine A, which is contained in green feed. Some poultrymen believed this disease, which was quite common the past winter, could be prevented by feeding yeast, which contains vitamine B, but this is not true, states Dr. Beach, who explains that green feed contains both vitamines A and B.

The main building at the Petaluma station contains an office and laboratory, sterilizing and wash rooms, and a dustproof room for carrying on special bacteriological work. For sheltering birds used in tests there are eight colony houses, each 8x8 feet, and a battery of 30 cages for confining individual fowls.

In addition to chickens, rabbits and cavies also are used in experimental work, the furred animals being more susceptible to the attacks of disease bacteria and more economically kept.

This unique and valuable institution was established by the State as a result of H. W. Kerrigan, secretary of the Petaluma Chamber of Commerce, inducing the Sonoma County supervisors in 1920 to appropriate $4000 to pay the expense of maintaining at Petaluma for one year an expert avian pathologist. The following year the State was prevailed upon to make an appropriation for establishing the station and paying the expense of its maintenance.

"The average poultryman doesn't appear to realize," points out Dr. Beach, who directs the work at Petaluma and has charge of a similar laboratory at Berkeley, "that fowl diseases are caused almost entirely by improper methods of feeding, housing and other things connected with the care of poultry especially sanitation.—O. H. B.

Signs of Prosperity

The owner of this ranch is a firm believer in co-operation, as evidenced by his "collection" of signs, including those of the Prune and Apricot Growers, Peach and Fig Growers, and Sun Maid Raisin Growers.

It would be difficult to conceive of a more pleasing or appropriate name for an appl ranch than the one selected by F. B. Henney, whose attractive road sign is illustrated.

Passersby on the highway are informed of Straloch's offerings by several substantial "three-way" signs. Manager J. I. Thompson of this progressive Yolo County stock farm is a great believer in advertising.

Direct sales of farm produce, advertised by means of blackboards such as this one, now amount to millions of dollars annually. Farmers, thank the automobile!

An attractive but substantial gate, restraining a good dog not "overly sociable" with strangers, is of great help in excluding undesirable callers.

Ranch name and utility blackboard have been artistically combined on this Southern California suburban farm.

Liberty (freedom) from city cares and discomforts may have suggested this name—and certainly the bell is symbolic! Have you named YOUR farm?

ORCHARD and FARM

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The Stolen Nest

MAY 11, 1924

"Solar Vitalizing" of Seeds and Food Products

Will This New Discovery Revolutionize the Preserving of Foodstuffs and Fruit Juices?

By O. H. BARNHILL

HAS Dr. N. F. W. Hazeldine, Los Angeles chemist, discovered a principle which will revolutionize the processing of food products and materially increase the productiveness of farm crops? Many prominent persons who have investigated his "solar vitalizer" are of this opinion.

Citrus growers in the vicinity of Covina, Los Angeles County, are very hopeful of the new process, which some believe will prove the salvation of the orange and lemon industry. Disposing of small fruit at satisfactory prices this year is an especially difficult problem. Growers, therefore, welcomed the recent construction of a solar vitalizing plant, in which orange juice and other citrus by-products are to be treated on a commercial scale.

The vitalizer is 10 by 45 feet in size and cost $10,000. The project is financed by Los Angeles capitalists, who are planning to construct similar plants at Redlands, where apple juice will be processed, and Fresno and in the Imperial Valley.

The Fresno plant will preserve grape juice and that in the Imperial Valley will process dates. Several tons of dates have been solar vitalized by Coachella growers.

A large number of food manufacturers and scientists have inspected Dr. Hazeldine's solar vitalizer near Exposition Park and sampled the products which have been treated therein. The general opinion is that the process appears to be one of great merit. Food companies, however, have been unwilling to go to the expense of constructing plants until one has been operated on a commercial scale.

The Covina plant is the first of a series of demonstration vitalizers to be operated commercially. It is owned and managed by A. C. Conboy, who was formerly engaged in the manufacture of fruit juices in Los Angeles. When, last summer, the Government made a ruling that all fruit juices offered for sale must either be pasteurized or preserved with benzoate of soda, Conboy quit.

"Cooking fruit juices or adding chemicals seriously injures their flavor and quality," points out Conboy. "Solar vitalizing preserves all kinds of juices perfectly, without changing color, odor or taste. I believe it will prove to be a great thing for the soft drink industry, since it is possible by this process not only to preserve fresh fruit juices, but to keep in prime condition fruit syrups for flavoring soda and mineral waters."

"Perfect" perhaps is too strong a term to use in describing the solar vitalizing preserving process, but in the opinion of the writer, who has examined a number of products treated by this process, the results are remarkably good.

Paul Welch, the grape juice king, says that solar vitalized orange juice is the best orange juice he ever saw and expresses great interest in the process. Officers of the South African Orange Growers' Association were so favorably impressed with the samples of vitalized orange and lemon juice sent them recently—although many weeks were required to transport the drink to its destination—that they sent a cablegram to Los Angeles, asking for terms on which a vitalizer could be constructed and used in Africa.

The vitalizer consists of a device or room enclosed on all sides and top with glass. Ordinary material is used for the sides, but on the under side of the top plate there are rounded projections about one-half inch in diameter and one-eighth inch thick. These act as lenses, changing the rays of light in such a manner as to produce the desired result.

Just how the effect is produced nobody—not even the inventor—knows. It has been found, however, that the lens glass must be set at a certain slope and in a certain position with reference to the points of the compass. A slight deviation renders the vitalizer inoperative.

The method of vitalizing consists simply in placing the article to be vitalized underneath the lens glass until the desired change takes place. The time required varies from a few hours to a week, depending upon the article treated, result desired and condition of the weather. The process can be carried on during cool, cloudy weather, although under these conditions longer time is required than on warm, sunshiny days.

No special preparation is needed before material is vitalized. Afterward it is placed in air-tight containers, where it is said to keep indefinitely. Products of a dry or oily nature do not need to be excluded from air. Olive, walnut and cocoanut oils, which ordinarily spoil quickly when exposed to the air, have been kept in good condition in open-mouthed bottles for several months, in one of the exhibit buildings at the *(Continued on Page 9)*

Dr. Hazeldine and the original solar vitalizer. Citrus juices now are being treated in larger plant, which has a daily capacity of 2500 gallons, at Covina.

Above—Showing the results of vitalizing seed corn. Wheat grown in Canada from vitalized seed is reported to have outyielded untreated wheat and to have ripened 18 to 20 days earlier.

Below—Method of vitalizing bottled fruit juices.

ORCHARD and FARM
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Economical Ration Is Secret of Dairy Success

How to Feed the Cow on Test—What Constitutes True Balanced Ration—The Critical Period After Calving—Palatability Important

By G. M. DRUMM

Dairy Department, University Farm, Davis

OF THE 25,000,000 dairy cows in the United States, only about one-third make a profit for their owners. It is certain that nothing has so much to do with this deplorable condition as improper feeding. And while the feeding question is a primary factor in obtaining economical production, it is of even more importance in handling cows on test, due to the influence on the record and the greater expense incurred.

In selecting a suitable test cow ration, it is quite necessary that the requirements be kept in mind and that they be supplied in such form as to be utilized or digested easily. Considering the required nutrients from a chemical standpoint first, they may be classified as follows:

(1) Proteins—These are used for the building of new tissue and replacing tissues that are worn out, and are absolutely essential to the welfare of the animal. When more protein than is required for the tissue building is supplied, it can be used in the production of heat and energy, or part of it may be converted into body fat. Pregnant animals use a large amount of protein in the developing of the foetus and later in the production of milk.

(2) Carbohydrates—The main function of this class of nutrients is to provide heat and energy for the animal body; it also adds bulkiness to the ration, and cows require a bulky ration to stimulate proper digestion.

(3) Fats—The fats are more concentrated heat producers than any other of the nutrients. They are used also as material to be stored up in the body. They help in the production of the fat and other milk solids. Each pound of fat is capable of producing 2.25 times as much heat or energy as a pound of protein or carbohydrate.

ASH IS IMPORTANT

(4) Ash—The ash, though usually the smallest constituent in a feed, is very important. It helps to build up and keep in repair the skeleton of the animal. In addition it aids in the functioning of the nerves and the maintenance of the muscles in working order, and assists many other vital functions. It is also responsible for the ash constituent of milk.

Besides the four classes of nutrients mentioned above, air, water and vitamines might also be discussed. However with good dairy management these will not be lacking to any extent and so need not be treated in detail. The accompanying table gives a summary of the required nutrients:

Nutrients for	Lbs. dry matter.	Lbs. crude protein.	Lbs. carbohydrates.	Lbs. fat.
Maintenance of 1000-lb. cow ...	20-30	.700	7.00	.100
Each 1 lb. of 3% milk	.....	.047	.20	.017
Each 1 lb. of 4% milk	.....	.054	.24	.021
Each 1 lb. of 5% milk	.....	.060	.28	.024

The table gives the approximate nutrients required by cows in milk. However, rations must vary within reasonable limits to suit the needs of each individual. The table can be used only as a guide. The relation of the protein to the carbohydrates plus the fat, times 2.25, is known as the nutritive ratio and should be between 1:4½ and 1:6½. When it approaches the lower limit it is known as a "narrow" ration and when near the upper limit is is considered "wide."

Test animals usually need a fairly narrow ration. A small excess of protein is stimulating to production when not overdone. Jerseys and Guernseys often do best on a ration as narrow as 1:3½. They require a narrower ration because they produce more milk in proportion to the feed consumed. Later in this article a ration will be computed for a test cow and compared with the requirements given in the table. The feed required for the production of milk must be narrower than that used for maintenance of the body.

(1) Variety—The dairy cow, unlike the beef animal, is on feed for many months, and as the maximum production can be obtained only by good feeding, it is necessary that everything possible be done to stimulate the appetite. Variety makes the ration more palatable.

Variety, however, does not mean a mixture of feeds from the same plant source—such as corn silage, corn stover, corn meal and corn gluten feed, but refers to a combination of feeds from distinct sources such as corn silage, alfalfa hay, rolled barley, wheat bran, rolled oats and linseed meal.

Recent work has shown that other advantages also are obtainable from variety in the ration. The proteins are built up of amino acids, but proteins from different plant sources do not always contain the same amino acids. The cow needs a variety of the amino acids for the upkeep of her body and the production of milk, which is quite a complicated compound. It is not very difficult to supply at least five concentrates in the grain mixture and by so doing a substantial increase in production will be obtained.

(2) Bulk—The dairy cow, like other ruminants, has a large, roomy alimentary tract especially adapted to handling bulky feeds, and she can handle one of a bulky nature much more efficiently than one that is heavy and concentrated. There are two reasons for this: Bulky feeds are easily regurgitated and so are more thoroughly masticated and better prepared for further digestion than are heavy feeds. In the digestive tract of the cow, the heavy feeds tend to form heavy masses which resist the digestive action of the juices and so do not yield all the nutrients that they are capable of. For the reasons just mentioned, 80 per cent of the grain ration should consist of such bulky feeds as rolled barley, rolled oats and bran.

PALATABILITY BIG FACTOR

(3) Palatability—Though the existence of palatability is seldom questioned, its definition or explanation is by no means simple. Though not determined so far as it known by the relative amounts of protein, carbohydrates and fats present, it has a decided influence on production. Likewise, although it has no influence on the digestibility of the nutrients present, it does have a decided influence on the utilization of the feed. The palatability of feeds is due to the presence of aromatic substances which give to the ration an aroma and flavor that is pleasing to the cows.

The secretion of the digestive juices to a certain extent is stimulated by nervous influences, and there is a probability that palatability and other factors inducing such secretion thus may cause indirectly a change in the amount of material di- *(Continued on Page 10)*

Daily Ration in Pounds for Cow After Calving

Days After Calving	Bran	Oil Meal	Grain Mix.	Beet Pulp	Silage	Hay	Beets	Cotton-seed Meal	Soybean Meal
1	10	1				2			
2	10	1		2	10	1	8		
3	10	1		2½	10	5	16		
4	4		2A	3	10	8	24		
5	4		4B 2A	3½	10	10	28		
6	2		4B 4A	4	12	10	32	2	
7	2		4B 5A	4	12	10	36	2	
8	2		4B 6A	4½	12	10	40	2	
9	2		6A 4B	4½	14	10	44	2	
10			10A 2B	4½	14	10	48	2	
11			10A	4½	14	10	52	2	2
12			10A	4½	14	10	56	2	2
13			10A	5	14	10	60	2	2
14			10A	5	14	10	60	2	2
			See Article	Increase to all cows will consume.					

California Fruit Farmers Winning Fight Against Big Odds

Co-operative Selling, More Efficient Production Best Weapons for Fighting Low Prices, Says Wrightson

By O. H. BARNHILL

WHAT ails the raisin growers? Are they going broke and losing their ranches? How is their association weathering the storm? Why can't it get a higher price for raisins?

In order to get some authoritative light on these questions, which frequently are heard, they were put to H. W. Wrightson, prominent Sun Maid grower and [illegible] president of the State Farm Bureau Federation. This veteran organizer not only is familiar with agricultural co-operation, but for 32 years has been growing grapes himself, having now a fine 40-acre vineyard near Fresno, managed at present by his son.

[illegible] BARNHILL

There's no denying that the raisin [illegible] is down to [illegible]," [illegible] Wrightson, "but [illegible] a year of sober [illegible] taking, grow[illegible] [illegible] necessary to [illegible] a profitable [illegible] we know [illegible] and this [illegible] what is [illegible] our [illegible]

"But we have passed the bottom of the Ferris wheel and trade is coming along fine, with business on the upward trend. In January we sold 14,000 tons of raisins, which is more than were disposed of the first six months of last year. Our able president and managing director, Ralph P. Merritt, is away on a flying trip to the Orient, where more than half the people of the world live, teaching the Japanese and Chinese to eat raisins. The biggest raisin order ever received from Japan has just come in and we are hoping that the Orient eventually will provide a profitable outlet for large quantities of American fruit."

INFLATED PRICES RESPONSIBLE

Investigation reveals the fact that most of the vineyards being lost are those which were bought at inflated prices, $1000 to $1250 per acre. It was unreasonable to expect a vineyard to pay out at such exorbitant figures. Those who paid, or agreed to pay, these cutback prices naturally are "drowning" as the moisture is squeezed out of watered stock, representing overvalued vineyards.

"Grape farmers who have been conducting their business conservatively and have not indulged in land speculations are in good shape to weather the present storm of low prices," Wrightson pointed out. "Vineyards now are valued [illegible] $700 per acre, which certainly is a good price. Properly managed, a good grape farm will, I believe, in the next few years pay interest on $500 to $750 per acre."

With their association reorganized and managed more economically and efficiently, as well as provided with adequate working capital, raisin growers had good reason to expect better returns than they received for the 1923 crop. But the weather, a factor beyond human control, interfered with their expectations by being so cold and wet that a large part of the crop was badly injured by mildew. Of course, the vines were sulphured, but there wasn't enough hot sunshine to make the fumes effective.

Because of mildew injury, 75,000 tons of raisins were unfit to sell in the usual way, therefore had to be converted into stock feed and other products. Of course, this made it possible to offer the rest of the crop at fairly good prices, but the losses on the mildewed stock cut down the grower's returns to an unsatisfactory figure.

Although it generally is known that the reorganization of the Sun Maid Association probably is the best that could be effected, just what was done, and why, is not understood by a good many persons, some of whom fancy they detect a colored gentleman concealed in the fuel supply, because the packing corporation was organized in Delaware, instead of California. This step, however, was taken because it was the only way in which the society could be made truly co-operative and at the same time give the association adequate working capital.

"You see," explained Wrightson, "sufficient common stock could not be sold to finance the business, rendering the sale of preferred stock necessary. California laws, however, require that holders of preferred stock shall have a voice and vote in the management of the corporation. This was not desired, because many of them were not raisin growers, and the sole control of such an organization should be vested in farmer-members, who hold the common stock. This is what makes a marketing association truly co-operative—allowing every grower one vote, and only one.

GROWERS CONTROL SUN MAID

"One reason why an agricultural marketing organization is subjected to so much criticism is because the average member doesn't understand what the directors and manager are up against," continued Wrightson. "Most manufacturing concerns, when the market for their product is oversupplied, can curtail their operations and within a few months cut production in half.

"With the farmer it is different. He has his crops planted and animals growing and must finish his cycle of operations or suffer great loss. It takes much longer for a fruit grower to enlarge or decrease his production than for the grower of annual crops. A vineyard, for example, once planted, must be allowed to bear many years or the owner will suffer serious loss. A grower cannot be expected to grub out his grapevines just *(Continued on Page 8)*

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(Exceeding combined circulation all other California farm journals)

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IN addition to publishing many articles by specialists of the State Agricultural Experiment Stations and Extension Service, ORCHARD and FARM maintains an eminent staff of associate and contributing editors, including such widely-known authorities as

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY

By THE EDITOR

CLEARING HOUSE PLAN SHELVED?

Although generally regarded as a step in the right direction, the grape clearing house plan evolved by the Sun Maid Raisin Growers and described recently in ORCHARD and FARM, does not give promise of fulfillment this year.

In fact, the association has granted releases to growers wishing to make bona fide sales of fresh grapes. Such releases, for protection of all members, are contingent upon the reliability of the buyer and the actual contracting of the fruit. The organization proposes to assist members in every possible way to secure fair prices and, it is explained, does not wish to cause any grower to lose an opportunity to make a satisfactory sale.

From the growers' viewpoint, as well as the shippers', however, it is unfortunate the latter could not get together for mutual protection, but for the present the old system of cut-throat competition and inefficient distribution seems destined for a new lease on life.

It is to be hoped that if nothing comes of the clearing house plan this season, at least Ralph Merritt's lucid review of the situation will serve to open the eyes of all concerned and result eventually in the adoption of a method making possible more orderly marketing of the fresh fruit.

MORE FOOT-AND-MOUTH CO-OPERATION

On every hand we find more examples of public-spirited co-operation with State and Government officials in the costly warfare upon foot-and-mouth disease.

For example, the preparation and distribution of educational films, to be shown at moving picture theaters throughout the State, was made possible by the combined action of all the milling companies of California.

The field men employed by these companies, equipped with official permits and working under direction of the authorities, have traveled far and wide, arranging for showing of the films, and at the same time giving talks and distributing literature aimed to acquaint the people with the seriousness of the situation.

The public at large cannot afford to do less than give complete co-operation by observing carefully every rule and regulation. Personal inconvenience is of small consequence compared to the crisis we are passing through!

SUPPLY AND DEMAND AT WORK

That the old fundamental law of supply and demand accomplishes automatically (if somewhat ponderously) what many "reformers" would bring about by artificial means is shown by recent reports of the U. S. Department of Agriculture. Not only are thousands of farmers leaving the country and going to the cities, but there is coming about a complete change in production.

For instance, 300 counties in wheat and corn producing States show a big reduction in grain acreage and corresponding expansion of dairying, poultry raising, hog breeding, and the production of hay and other field crops.

Dairying, the reports show, has expanded practically everywhere and there is a general movement towards diversification in all former one-crop districts.

No doubt, before the present movement is completed, the pendulum will swing too far in the other direction; it usually does. Meanwhile anyone laying plans for the next five years will do well to give very careful study to the trend of agricultural events.

WHAT'S NEW? *Keeping Abreast of* Agricultural Progress

Form Hay Growers' Association

THE Farm Bureau called a meeting of hay growers of Imperial County for the purpose of discussing grading, standardization and orderly marketing. It was decided to form a hay growers' association. A committee on by-laws was appointed. The organization committee will attempt to sign up 15,000 acres of hay in the association.

Big Cover Crop Yields

FOUR cover crop plots showed remarkably heavy growth in Sonoma County, considering the dry and cold condition of the past three months. One crop of vetch and barley yielded over 12 tons per acre, another crop of the same combination gave 8 tons per acre, a crop of melilotus indica yielded 9 tons per acre and a crop of vetch 6½ tons.

Flooding to Remove Alkali

SEVERAL interesting tests made by farmers in co-operation with the Imperial County farm adviser, indicate the feasibility of leaching out alkali. One of the plots flooded for this purpose is now said to be growing a good stand of alfalfa on land where formerly the seed would not germinate. Others are producing heavy crops of barley.

Council Appeals to Bankers

IN CONNECTION with the fight against foot-and-mouth disease, the California Dairy Council has sent a personal appeal to California country bankers, urging them to get in touch with their clients engaged in dairying or stock raising, and urge them to observe the strict quarantine regulations. It is pointed out pressure brought to bear in this way might impress many, particularly foreigners, who cannot be reached effectively by other methods.

Solving Irrigation Problems

TWO soil moisture field tours, sponsored recently by the Orange County farm adviser, revealed that a common problem on some of the heavier soils is to secure proper moisture penetration to the desired depths for reaching tree roots. It is believed the solution of this problem is in holding the water on the land longer during each irrigation, and lengthening the intervals between applications. Under this system it is believed approximately the same amount of water will be used during the year, but with better penetration to encourage growth of tree roots at lower levels.

Farming of the Future

IN THE future there will be large farms managed by business executives of high caliber, superintended by men adequately trained in the natural sciences and farm practice, according to a prominent agricultural authority who has made an exhaustive study of the trend of American farming.

"Planting will be controlled and overproduction prevented," he predicts. "Standardized products will be sold throughout the year in quantities just meeting market demands, thus eliminating outside speculation.

"There will be an increase in the use of milk and milk products, because a dairyman can get more food from a cow than can a butcher."

Solving Brown Rot Problem

CONTROL of prune brown rot in Oregon orchards is favored by early plowing and frequent harrowing of the soil throughout the blooming period, says the Oregon Agricultural College. Since the spores that infect the new crop come from the delicate spore cups which grow up from the old mummied fruits in the soil, this treatment interferes largely with spore development. The practice diminishes so greatly the sources of brown rot infection that it is strongly recommended by plant pathologists of the station wherever soil conditions will permit. Only by spraying, however, can the growers in some districts insure protection from serious brown rot infection when favorable weather conditions arrive.

Nutrition Work Furthered

THE nutrition class for underweight children at Saranap (Contra Costa County) has had several meetings. The physician has completed medical examinations and the eleven children who are underweight have started keeping weight charts. They will be weighed every two weeks. The children were given cards with a clock at the top on which the hands were pointing to a quarter of eight, the time to start getting ready for bed. Below were listed the days of the following week, followed by a blank to be filled in with the time the child actually went to bed. The Oak Grove school now serves a hot lunch, which is financed entirely by the Parent Teacher Association, so that every child will be served. It is prepared by the mothers, who take turns, two going each day. The teacher weighed the children at the first meeting and a check will be made by her on the real value of the lunch. This is typical of the work being done by the Agricultural Extension Service in many districts.

Imperial Gets Date Offshoots

ARRANGEMENTS have been made by an Imperial County date grower to obtain two-fifths of all the date offshoots imported by the U. S. Department of Agriculture in 1920 for planting in Imperial County, according to the farm adviser. This will make by 1927 a large available supply of offshoots for the valley. It is believed that this is the most important step in the history of the date industry in the county. Two demonstrations of methods of pollenizing the date palm blossom were attended by 48 persons. Specialists from the U. S. Bureau of Plant Industry co-operated.

Radio Home Economics Class

SIX MILLION farmers' wives are going to school together. An institute for women, covering every phase of household economy, is being personally conducted by experts in home economics in every farm woman's living room between 3.45 and 4.45 each afternoon five days a week. This hour a day class is known as the Radio Home Institute, the programs being broadcast over the new Sears Roebuck agricultural broadcasting station WLS by the women's department of the Sears Roebuck Agricultural Foundation, Chicago.

Sugar Beet Crop Third Largest

FINAL reports of the 1923 United States sugar beet crop show that 7,006,000 short tons of beets were harvested and that 6,565,000 tons were sliced for sugar. This is the third largest crop on record, being exceeded only by the unusually large crops of 8,538,000 tons in 1920 and 7,782,000 tons in 1921. More beets were produced per acre in 1923 than in any other year since 1915, the yield per acre being 10.66 tons in 1923, compared with 9.77 tons in 1922 and 9.55 tons in 1921. The 657,000 acres harvested in 1923 were less than the acreage harvested in five of the preceding ten years, but larger than the average of 655,000 acres for that 10 year period. The 1923 crop was worth at least $58,800,000 to growers, the U. S. Department of Agriculture says.

Pecan Culture Data Available

ANNOUNCEMENT is made by Farm Adviser Robert W. Hodgson that the report on the possibilities of pecan culture in Southern California is prepared by C. A. Reed of the U. S. Department of Agriculture, pecan authority, now is available. Copies of the report, together with introductory statement by the farm adviser, can be obtained by application at the Agricultural Extension Service, 202 North Broadway, Los Angeles. According to Mr. Reed, there is little prospect for extensive commercial pecan culture in Southern California. It will never rival the walnut industry, he believes. The report is thorough and conservative and made after a careful study from every angle.

FARMER'S *Viewpoint*

DECAPITATE THE BOARDERS!

If many hens in the flock lose their heads, it may indicate the owner is keeping his head.

AN ALLITERATIVE ADAGE

C. M. Hamshaw suggests this slogan for the progressive country financier: "Better bulls, bucks and boars build bigger bank balances."

WELL, WE'RE RAISIN' RAISINS!

"We prune our prune trees; therefore we ought to pare the pear trees," suggests Justin Nutt. For that crack Justin, you may shine out for a good cigar. Your ideas haven't even a kernel of common sense.

AND WE'RE A LITTLE HOT UNDER THE COLLAR!

We're not trying to make the consumers holler, merely want to get our just share of the consumer's dollar!

AND THE FARMER PAYS THE FREIGHT

Looks as though the railroads have been getting up steam to engineer another big boost.

IN FACT, IT'S ALMOST IMPOSSIBLE!

If politicians fain would win us,
They must be "for" and not "agin" us—
Even after we elect 'em
(It's such a nuisance to elect 'em.)

LOOK INTO THE MIRROR

You will nearly always find the book of rural life reflected by the Farm Bureau.

ASK THE MAN WHO OWNS ONE!

Probably the most difficult form of agricultural extension work is persuading your banker to extend that unsecured loan.

How Much Will a Tractor Pull?

Many Factors Must Be Considered—Relation of Weight and Speed to Drawbar Efficiency Discussed

By L. J. FLETCHER
Division of Agricultural Engineering, College of Agriculture, University of California

"I HAVE a 15-30 'Thunderbolt' tractor. How much will it pull?" Inquiries similar to this are the "star boarders" of the Question and Answer Department. Yet, some tractor owners do not realize that this question is about as easy to answer as: "I have a barn forty feet wide. How much hay will it hold?"

The amount a tractor will pull depends, first of all, upon its weight. When the statement is made that a tractor will pull 2500 pounds, this does not mean that it will move only a load weighing 2500 pounds. This means, rather, that a heavy spring scale would read 2500 pounds if placed so that it would register the tension or pull in the drawbar or cable connecting the tractor to the load.

The tractive efficiency of a tractor is sometimes expressed as a ratio between its maximum drawbar pull and its total weight. For example, a tractor which will exert a maximum drawbar pull of 3100 pounds and weighs 4600 pounds would be said to have a tractive efficiency of 68 per cent.

In 1919 the State of Nebraska passed a law requiring that all models of tractors sold in that State be given a complete test by a board of engineers. One of the purposes of this law was to prevent the sale of overrated tractors. One hundred models of tractors have been tested since the enacting of this law and tractive efficiencies of these machines have varied from 28 per cent to 93 per cent. A study of these tests clearly indicates that the later designs of tractors have a higher tractive efficiency. The last ten machines tested at Nebraska were three track and seven wheel tractors, the average tractive efficiency being 63 per cent. In these ten, however, the highest was 87 per cent and the lowest 42 per cent.

Testing the drawbar horse power of a tractor at the University Farm, Davis

RELATION TO TRACTOR WEIGHT

Statements sometimes are made that a tractor has pulled more than its weight. This may be possible under extraordinary soil conditions but, so far, the writer does not know of an official test showing that a tractor has sustained an average drawbar pull of more than its own weight for any appreciable length of time.

The difference between horsepower and drawbar pull is not always clear to the average reader. While weight is absolutely essential for high drawbar pulls, the power of a tractor depends also upon the size of its engine and the efficiency of its transmission. It would be possible to mount a very small engine in a ten-ton tractor chassis and exert a pull of six to seven tons on the drawbar. This machine, however, would move so slowly that no one would consider it for field work.

Power is the rate of working and consists of two factors—speed and drawbar pull. The drawbar horsepower of a tractor may be determined by multiplying the pounds drawbar pull by the number of feet it travels per minute and dividing by 33,000. Thus, two tractors may have the same rating, say 15-30, meaning 15 horsepower on the drawbar pull and 30 on the belt. If the working speed of one of these tractors is 1.75 miles per hour it will have to exert a drawbar pull of 3200 to develop its rating. If the other tractor has a working speed of 2.75 miles per hour it will only have to pull 2040 to develop this rating.

TYPE OF LUG FACTOR

The second important factor bearing on the amount a tractor will pull is the type of lug or grouser used on the drive wheels. In the Nebraska tests the average drawbar pull of eleven wheel tractors equipped with angle lugs was 47.5 per cent of their weight, while the average drawbar pull of nineteen wheel tractors equipped with spade lugs was 57.5 per cent of the weight. The track used for testing at Lincoln, Nebraska, is similar to an ordinary field, packed well, with a loose mulch on top. There are certain conditions where angle lugs make a better showing; for example, on certain types of sod.

Third, the type of soil and nature of vegetation has a great deal to do with the amount the tractor will pull. On firm, moist soil the tractor grouser or cleat will often obtain a perfect footing, thus allowing a very high tractive efficiency. On the other hand sandy, very wet or soft soils, or ground covered with a rank vegetation such as a heavy cover crop, materially reduce the amount that a tractor will pull. Some types of tractors tend to sink into the soft ground, which means that the drive (Continued on Page 8)

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WHEN ANSWERING ADVERTISEMENTS PLEASE MENTION THIS MAGAZINE

Radio on the Farm—II. Social Possibilities

By DR. RALPH L. POWER

"The Sky Crier," Los Angeles Examiner Radio Studio

WHEN the phonograph came into being, the social life of the farm at once became changed. But what the phonograph did for the isolated and remote districts the radio is doing in a better and broader way.

DR. RALPH L. POWER

The cultural and spiritual possibilities of broadcasting make a gold mine that has scarcely been touched. Not only individual homes but the country school districts as well ought to have the many benefits of radio.

With a receiving set the lectures, music, and educational stimulus of the great metropolis are all brought to the outlying districts.

This not only makes the farm a happier place to in which to live but it also brings an educational contribution of the highest excellence to every rural community. The country now receives the city jazz and classical music, popular selections, educational lectures, and what not, at the same time they reach city homes.

To the rural school the radio brings direct and interesting instruction to pupils as well as stimulating the interest of teachers and increasing their efficiency. It brings music and Divine services to the bedridden and the blind.

But it means more than that even. For the housewife, the latest styles from all over the country are broadcast by experts in style and fashion and she can also learn of new recipes. The youngsters of the family can keep in touch with sports and know the latest decisions; the older men like to know of the latest inventions and explorations in the news of the busy, wide-awake world. And, of course, everyone enjoys music.

Sets on the farm sometimes have four or five ear phones attached. But more often they have a loud speaker or a special attachment so the music is given from the phonograph sound box.

Orchestral music at once meets with popular favor on the farm. You can hear Olsen's Metropolitan orchestra in the Hotel Portland through KGW in Portland, or Rudy Seiger's orchestra from the Fairmont Hotel in San Francisco through KPO, or the Ambassador orchestra from KFI in Los Angeles.

Classical selections from The Examiner studios, the General Electric in Oakland, and other stations bring to your door the best in classical music.

Bedtime stories from KHJ, Los Angeles, religious services from KJS or KFSG, Los Angeles, and technical information from KFAE in Washington are but inklings of the many good things in store for radio enthusiasts on the farm.

The time is not far distant when it will be possible for you to sit cozily by the fireside in your home and tune in at any time of day or night any place in the United States on exactly the kind of program you wish whether it be classical or popular instrumental or vocal, lectures or speeches. While it is true that the farmer needs stock, grain market reports and information about the planting, proper care and harvesting of his crops, it is also true that he needs something to brighten his periods of relaxation. Radio fills this requirement, for a good receiving set is like a magic box that pours forth constantly varying programs of delightful entertainment.

This is the artist's idea of a practical farm use for the radio. He maintains it is even more important to have contented milkers than "contented cows." And, indeed, entertainment of this kind should make the time pass quickly—but would the cow stand for the aerial we wonder!

Does the Heat of Summer Cut Off YOUR Milk Market?

Have you ever had a shipment of milk rejected as sour? If so, you realize the importance of the above question. But there is a way to continue your profits through the summer months. **Put your milk through a McCormick-Deering Primrose Cream Separator and ship the thick cream to a creamery!** The McCormick-Deering Primrose gets all of the cream, down to the last drop, and the skim milk makes nutritious food for calves, pigs and chickens. Think of the advantages of having an all-year market with good returns from your dairy herd.

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Shaping a Fig Tree

THERE are two possible ways of shaping any fruit tree. One is by letting it grow all season, then cutting it back to desired size and forcing outside branches. This is the common and almost universal method.

Another possibility in tree shaping is by pinching back the tips of the growing branch in early summer or any other time that suits. Figure where you would cut a branch in winter and pinch off the green tip at that point. Then it will grow no longer and the side shoots will be forced at that same season. This is sometimes done in heading vines. The excellent results in shaping a Kadota orchard in Southern Tulare County by this method were related in ORCHARD and FARM several months ago.

Recently the writer saw a three-year-old Calimyrna fig tree in an old orchard that had been trained out by the pinching method. It was low headed, with many spreading branches carrying a great amount of fruit well and ideally shaped for picking the fresh fruit from the ground. The shape was entirely different from the unpinched and common Calimyrna tree.

In every way the shape was better and the bearing age far earlier. The branches were very much thinner than ordinary Calimyrna branches, which is natural, considering the way laterals were forced out in mid-season by the pinching process. As an experiment the plan can be suggested for trees of every kind.

As it relates to Capri fig trees it has special significance. Such pinching in early summer forces out a heavy crop of carry-over figs. Also some of the newer Capris with figs of enormous size are over-strong growers and the pinching affects them as it did the Calimyrna tree described. It will increase production and improve the shape a great deal.—TULARE FARMER.

Sharpen Blast Auger

THE practice in this section is to sharpen dynamite augers the wrong way, but thanks to a [illegible] man, a farmer near here learned how to get an auger fixed right and perhaps the lesson will be good [illegible].

Augers mostly have been fixed at the blacksmith with the two cutting wings coming down in a straight line and at a fairly sharp angle. When first taken from the blacksmith shop they dug in so quickly that a man could hardly turn them and after they were enough to turn, they got down no time at all.

This miner saw such an auger and had it sharpened with the two cutting wings curved gradually so that to the point, they came out nearly [illegible] and sliced off bits of dirt and [illegible] instead of digging straight into [illegible].

Boring holes with the auger is now easier and it stays sharp longer. The next time the auger is [illegible] and stand over the blacksmith to see that it is done properly.—TULARE FARMER.

BILLIONS FOR ONE APPLE

A single Washington apple [illegible] sold in Germany for [illegible] marks—worth about [illegible] cents. The sight of the fruit in a Berlin store [illegible] large crowds because of its [illegible] to the home grown product.

Pruning of Grafted Trees Vital

By GEORGE P. WELDON, *Contributing Editor*

THE first summer's care of young grafted trees is fully as important as the preliminary work of grafting. Frequently young grafts are so crowded out by foliage which develops after the trees are headed back to be grafted that they either die or make unsatisfactory growth.

The healthier the trees at the time of grafting, the more rank this growth is apt to be. Pruning, therefore, becomes a necessity and should be done early in the summer in order that maximum growth may be attained in the grafts.

This pruning at first should not consist in the removal of all growth besides the grafts. This is because of the fact that the foliage of the grafts when they are young is insufficient to feed the grafted tree, as well as the grafts themselves. The accompanying illustrations, which were taken about six weeks after a young pear tree had been grafted, show very clearly the method that should be used in pruning. It will be noted, in the case of the picture which was taken before the tree was pruned, that the grafts are indistinguishable, and in a case of this kind they would fail to make a satisfactory growth and, besides, might be crowded out entirely if pruning were not done.

It will be noted also that everything in the way of new growth surrounding and just below the grafts was removed. Still lower down in the crotches of the tree, the tender shoots were merely tipped so that the foliage at the base of the sprouts remained. This additional foliage means much, not only toward the development of the grafts themselves, but toward the satisfactory development of the trunk and scaffold branches of the young trees. It means, also, shade to prevent the sun scald.

It is necessary to go over such trees as this several times during the season, as additional growth takes place. When the grafts themselves have attained a length of 15 inches or more, they will have enough foliage so that there will be no necessity for leaving much of the foliage below. However, it is not objectionable to have some of the foliage remaining in the crotches throughout the entire season. The early work of pruning, such as indicated in the accompanying cuts, may be done with the thumb and forefinger when it involves simply pinching off the terminal growth, or it may be done with light pruning shears, or even a pocket-knife.

If these instructions are followed, grafts which have started in the spring, barring accident, will make a satisfactory growth during the season.

Before and After

The accompanying illustrations of a young pear tree before and after pruning, show how foliage should be removed to allow for development of grafts. Much of this early pruning may be done with thumb and forefinger.

Standard Fertilizer Practice for Citrus

By J. ELIOT COIT, *Contributing Editor*

DURING the past 20 years a great deal of careful study has been given the big problem of citrus fertilization both by soil scientists and practical growers.

There has gradually developed a standard fertilizer practice, which with some variation to suit individual needs may be depended upon as sound and economical. The majority of those with most experience are pretty well agreed on the following fundamentals:

The optimum requirement for ordinary full bearing citrus trees is three pounds per tree of actual nitrogen per year, or four pounds for extra large trees.

Of this amount, two-thirds should be given in the form of late summer or fall application of coarse humus-forming materials such as cattle manure, alfalfa hay, lima bean straw, or other bean straw. This should be plowed in, the heavy plowing being done in fall, except where cover crops are grown.

One-third of the nitrogen may be given in the form of an organic concentrate such as dried blood, fish meal, cottonseed meal, etc. The commercial fertilizer should be applied and disked in from three to five weeks before the trees are in full bloom.

Where the soil is well stocked with humus, it is permissible to economize on the price of nitrogen by using the cheaper sulphate of ammonia or calcium nitrate. Where cover crops are good, a smaller amount of manure is needed in proportion to the size of the cover crop. [illegible] analyses show that Califor[illegible] [illegible] generally are well stocked with [illegible] and phosphoric acid. This comes [illegible] [illegible] natural rock decay and [illegible] is not heavy [illegible] as these [illegible] soluble condition long at a time as nitrogen does.

Practical tests of these fertilizers show that citrus trees do not respond to their use. Appreciable amounts of both phosphorous and potash are carried into the soil in the manure or bean straw, and the decay of the materials in the soil results in additional amounts being made available.

The most successful groves are the ones which receive a moderate amount of fertilizer—as outlined above—regularly every year, regardless of market conditions.

'Bob' Jones Returns Soon

ROBERT E. ("BOB") JONES, of the California Dairy Council, Contributing Editor of ORCHARD and FARM, who has been in Florida for two months on leave of absence, expects to return soon and resume his former duties. Readers who have missed his "Little Stories of Farming," long a prominent feature of ORCHARD and FARM, will be glad to know this valuable and interesting department will soon make its reappearance in this magazine.

Weldon Gives Radio Talk

AMONG other prominent agricultural authorities and leaders who have taken part in radio programs broadcast by The Los Angeles Examiner (KFI) is Prof. George P. Weldon, Contributing Editor of ORCHARD and FARM and pomologist at the Chaffey Junior College, Ontario. Mr. Weldon spoke recently on "summer pruning," and outlined methods to be followed by the fruit grower at this season.

Protecting the Live Stock Market

The Los Angeles Union Stock Yards are doing everything possible to aid the stockman in the present emergency. We have spent thousands of dollars in thoroughly cleaning and disinfecting our yards, building a separate quarantine division for California livestock, and putting in 2000 feet of extra track for convenience of railroads in cleaning and disinfecting cars.

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We are in thorough accord with Federal and State authorities and trust that the use of our facilities will enable the California producer to find a good and immediate market for his stock. We believe it essential to protect the packing-houses against becoming infected, as this would hamper the producer in finding a market for his stock.

Even in emergences like the present, the Stock Yards offer the producer the benefit of competitive bidding — as numerous buyers representing many packing-houses are daily cash bidders for stock.

Los Angeles Union Stock Yards Co.

"The Great Western Market"

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PIGEONS—Selected Silver King youngsters for sale. JAS. A. AVERY, Napa, Calif. R. R. 1, 704.

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HAZARD & MILLER—Herman Miller formerly eight years member examining corps, U. S. Patent Office. Hazard's Book on Patents free. CENTRAL BLDG., Sixth and Main, Los Angeles, Calif.

How Much Can Tractor Pull?

(Continued From Page Five)

wheels are continually climbing an apparent grade. Thus a larger per cent of the power of the engine is absorbed in moving the tractor and less is left for pulling the implement.

The power of the engine is the fourth factor. Since the cost of a tractor depends to a large extent upon its weight, there has been a tendency to increase the speed of tractors, which will allow a corresponding decrease in weight and still develop the same power. This also allows the use of smaller implements which move faster and accomplish the same amount of work. There seems to be some limit as to how far this speeding up tendency can go. Nevertheless in most of the later makes of tractors the engine is powerful enough to spin the drive wheels or tracks when the transmission is in low gear. In other words, the amount the tractor will pull is limited by the weight of the tractor rather than the power of the engine.

Frequently attachments are placed on light tractors with the purpose of making them more versatile or increasing the drawbar pull. These attachments almost invariably increase the weight of the tractor from 20 per cent to 40 per cent and sometimes lower the gear ratio. In this way the tractor will be able to pull a greater load.

Other factors which influence drawbar pull are grade, hitching of load, and the design and condition of the tractor engine and transmission. Many tractor owners would secure better service from their machines if they were careful to select the drive wheel, grouser or lug equipment best suited to their own special soil conditions.

(Editor's Note—Any subscriber having specific tractor problems may submit them to this publication and they will be referred to competent authorities for reply.)

Home Gardening to Offset Jap Exclusion

A TIMELY warning, accompanied by practical suggestions, featured a recent radio talk by H. A. Marks of the Germain Seed Company, broadcast by Station KFI, The Los Angeles Examiner.

"The fact is," pointed out Mr. Marks, "that the Japanese have produced 95 per cent of all the vegetables consumed in Los Angeles and a large percentage of those used in other parts of California.

"We have decided we do not want the Japanese controlling our lands, but in turn we must think and look ahead a bit. Thirty-five per cent already have left their ranches, and in the next 60 days it is estimated 25 per cent more will leave. That will leave 40 per cent who will ultimately move out.

"If we knew this was going to happen to the baking industry, and we could get no bread from bakeries, every housewife would behoove herself to learn how to bake bread and put herself in a position to supply her family with this necessary food.

"Vegetables are just as necessary as bread. They are just as much a part of your daily food. There is an unusual opportunity for the home vegetable gardener this year.

"Many people think that it is a difficult thing to grow vegetables. This is not true. I am talking from experience when I say this, because when I was a boy of twelve, the first money I made was from a vegetable garden. I sold my produce to the neighbors and made quite a little money from my work after school. I bought packets of seed, and followed the instructions printed thereon, and I remember very distinctly that I had no trouble whatsoever. Maybe I planted my beets or radishes too thick at first, but eventually I got the necessary experience, and I had no trouble to produce what was wanted in my neighborhood.

"What vegetables need most is cultivation, and I know that you can have a vegetable garden without any of the necessities that sometimes seem essential. Plant your seed according to directions. Keep the soil well moistened until they come up, and cultivate and see that they are watered at all times.

"Seed, water and cultivation, with a little common sense, will produce all the vegetables, and as good vegetables as you will secure at any of the markets. Vegetables are like flowers, they need attention. Flowers will not grow and bloom without a little petting, and so it is with vegetables. While they are hardier, they need encouragement, and that comes in the cultivation and watering."

Fruit Farmers Fight Against Big Odds

(Continued From Page Three)

because the market suffers a temporary depression.

"He demands, however, that his marketing organization obtain good prices for an enormously increased production, no matter what market conditions may be. He does not permit his sales manager to have any say about how much shall be produced. Suppose any other big manufacturing enterprise were conducted in this manner. Imagine what would happen, for example, to an auto organization if producers demanded that it should work up into autos all the wood, iron ore, rubber, paint and leather brought to its factories and pay good prices for these materials.

"Another unfair criticism of co-operatives results from comparing their prices to those obtained by independent dealers. Growers often fail to take into consideration the fact that a co-operative is compelled to sell everything turned over to it; the amount, grades and time of delivery often being unknown quantities. The private dealer, however, often is able to find a market in advance for a certain quantity and grade of fruit and then contract for just what is needed to fill his orders. Is it any wonder, then, that he sometimes obtains better prices than the co-operative?

"Suppose independent dealers had to find a market for the entire raisin crop? What would happen to prices? As a matter of fact, what did happen before we organized? We complain of present low prices, but they are high compared to what packers paid us before we organized. Not only that, but they could not avoid glutting the market with less than one-third of the present tonnage. If they could not sell 70,000 tons, what would they do with 250,000?

"Independents had things their own way for years and see what they did: Obtained hog feed prices for our fruit and then carried a large share of it over to glut next year's market. What would they have done with a production that more than trebled in 10 years? What would be the condition of the raisin industry today if we had not organized a marketing organization? True, non-members benefit by the $2,000,000 or more we spend each year in advertising and by other Sun Maid activities, but where would they be without our co-operative?

Prior to 1912, the year we organized, the world had learned to eat 200,000 tons of raisins annually of which less than one-third were produced in the United States. By 1922 this consumption had been increased, largely by the Sun Maid growers, to 400,000 tons. By doubling raisin sales, our co-operative accomplished as much in 10 years as had all the independent dealers in 4000 years. We also obtained much higher prices and did it with a semi-luxury crop.

"Experience has taught us that in the future one of the most important functions of a wisely managed co-operative association will be properly to safeguard its membership against overproduction, by warning against excessive plantings.

"In this, as in many other ways, the growers of Sun Maid raisins are building constructive history for the farmers of this country. During the last year we have tasted a little of the bitter; but we know that it comes with the sweet. We have always had to fight against big odds, but we have proved that the way to win is to remain united. That our membership was increased by 2500 growers during the period of our greatest stress is undeniable proof of the determination of our growers to stick together through thick and thin, and the strongest evidence of continued success."

Hints on Digging Ditch With Dynamite

DITCH digging with dynamite is no mystery, points out an authority on the use of explosives. The width and depth of ditch required depends upon the amount of water to be carried away and the fall which can be secured. Land which permits a good slope for a ditch can be drained with a smaller ditch than land which is practically level so that a minimum fall can be obtained.

The smallest practicable ditch that can be dug with dynamite is about two feet deep and about four feet wide on top. This size of ditch can be blasted with a single line of holes about two feet deep and spaced approximately 20 inches apart, if in muck soil or heavy clay saturated with water. Dry soils would require a little different spacing, the holes being a little deeper and a few inches farther apart.

If a larger ditch is desired, holes four feet deep and 18 to 24 inches apart will result in a depth of about three and one-half to four feet and a top width of eight to ten feet. In case still larger ditches are necessary two parallel lines of holes, the same as stated above, and probably six inches to a foot deeper, will give a ditch from four to five feet deep and 12 to 15 feet wide.

The two lines of holes should be from 24 to 30 inches apart. Still larger ditches have been blasted, but for ordinary farm drainage the last ditch mentioned generally proves of ample size to take care of the drainage.

The type of soil has a great influence on the selection of the kind of dynamite and also upon the spacing of the holes. Heavy clay soil saturated with water or a muck soil such as is generally encountered in swamps can best be blasted with 50 or 60 per cent straight dynamite by the propagation method. Dry soils of any nature, except very sandy soil, can be blasted by the electric method using 30 per cent to 40 per cent low freezing ammonia dynamite.

One of the most interesting developments in blasting ditches with dynamite is the fact that the experts have developed what they call the propagation method of shooting the holes, i.e., one cartridge is detonated and this in turn serves to explode all the rest of the line. This type of shooting is done in wet soil and takes far

Solar Vitalizing

(Continued From Page Two)

State Exposition Park, according to W. Harris, superintendent of the building.

"The solar vitalizer exhibit contains a great variety of food products," states Harris. "Some of them have been in the building a year, yet all have been kept in such good condition that none has had to be replaced.

"The solar vitalizing process seems to be a great invention and is deserving of thorough investigation by public officials and private concerns," concludes Harris.

Miss Treleafe, secretary to Harris, had a large quantity of rhubarb juice solar vitalized. This liquid kept in perfect condition for several months, she states, or until it was all used by her invalid niece, to whom it was recommended by a physician.

"By means of solar vitalization, rhubarb juice can be made one of the cheapest and most healthful of all drinks," declares Austin J. Hooser, Dr. Hazeldine's assistant. "My own health has greatly improved since I have been drinking large quantities of solar vitalized fruit and vegetable juices. The juices of watermelons and tomatoes, as well as of all other vegetables and fruits can be preserved perfectly, without cooking or the use of chemicals."

Many persons who have visited Dr. Hazeldine's laboratory have observed the complete process of solar vitalizing and some have done all the work themselves, to make sure the products are not secretly manipulated. Everything is done openly and the fullest investigation invited.

Chemists are unable to discover just what change takes place in the products treated. "We chemists labor under a certain disadvantage with reference to new discoveries, in that we work only with known laws," explains a prominent Los Angeles scientist. "It is possible that Dr. Hazeldine has discovered a new principle, one with which present day chemists are unacquainted."

In Dr. Hazeldine's laboratory there are hundreds of samples of solar vitalized food products, in great variety, each bottle or jar being labeled with the date when processed, which in some cases was years ago. Visitors always are welcome.

The discoverer of solar vitalizing is a Los Angeles chemist and scientist who for several years has devoted his entire time to food product studies and investigations. He has overcome many difficulties and is constantly perfecting his process, while adapting it to various products.

Foods not only are preserved by vitalizing, but are protected from insect infestation. The writer saw a piece of beef which had been vitalized and was hanging in a shed buzzing with flies and other insects, yet not one of them bothered the meat. Vitalized dried fruits, beans, peas and similar foodstuffs never are attacked by weevils or worms, it is claimed.

Milk and eggs are kept in good condition without pasteurization or refrigeration, when vitalized, even in torrid Imperial Valley temperatures, according to those who have experimented with this process.

"Twenty thousand bacteria per cubic centimeter are allowed by law in pasteurized milk," explains Conboy, "but solar vitalized milk contains no bacteria whatever. An effort is to be made at the next session of the California Legislature to amend the pure food law in order to provide for a new grade, 'solar vitalized' food products, which then will be recognized officially as being in a superior class by themselves.

"Milk dealers of Southern California have nearly three-quarters of a million dollars invested in pasteurization plants. The adoption of solar vitalizing will mean the junking of all this equipment. Naturally, dealers are cautious about making the change, until forced by competition."

Another promising field opened up by solar vitalizing is seed improvement. It is claimed that seeds treated by this process germinate quickly and grow vigorously and the plants produced are more resistant to disease and insect pests than those grown from untreated seed. A bushel of vitalized wheat planted in the middle of a Canadian field is reported to have produced a crop entirely free from rust, although the rest of the field, grown from untreated seed was badly injured by this disease.

[illegible] th[illegible] ORCHARD AND FARM is not [illegible] process de[illegible] about [illegible] worthy of [illegible] Various un[illegible] when the temperature [illegible] 60 degrees [illegible] Con[illegible] the [illegible]

Agricultural Leaders of the Pacific West

DR. THOMAS FORSYTHE HUNT

University of California, College of Agriculture

THE College of Agriculture of the University of California stands among the five leading colleges of agriculture in the United States as the result of the efforts of three outstanding men. From their hands the torch has been passed one to the other since the college was founded: Dean Hilgard, Dean Wickson and Dean Hunt.

Building on the foundation laid by his predecessors, Dean Hunt developed the institution during the past decade to a point from which its influence is felt in the remote corners of the State; and the motto carved on the western face of Hilgard Hall, looking toward the Golden Gate—"To Rescue for Human Society the Native Values of Rural Life"—has become a very real objective, toward which progress has been made.

Coming to California in 1913 from Pennsylvania State College of Agriculture where he had served as Dean for five years, Dr. Hunt brought with him a wealth of experience and agricultural background to aid in directing the institution in this State.

DR. T. F. HUNT

Born in 1862, the year in which President Lincoln signed the act creating the agricultural or Land Grant Colleges, he was one of the first group to take advantage of these new institutions of agricultural learning when they became established. His life in a large measure typifies the spirit and the service which these State colleges of agriculture have demonstrated in American life.

On graduating from the Illinois State College of Agriculture in 1884, he entered service with this State, then later with his Alma Mater, leaving later to become Professor of Agriculture in Pennsylvania State College. In 1896 he was asked to become Dean of the College of Agriculture in Ohio, which position he held until 1903, when Cornell secured him as Professor of Agronomy for four years. Recognizing his leadership and influence in the educational world, Pennsylvania College of Agriculture called him in 1907 to return to that institution, this time as Dean of the college and director of the Agricultural Experiment Station, from which work he came in 1913 to the College of Agriculture of the University of California.

SPONSORED EDUCATION REFORM

As a teacher and an investigator his activities have never been limited to the classroom, laboratory or campus. It has ever been his purpose to reach and grasp the fundamental truths of rural back life and to relate educational activities to them directly.

Early recognizing the need of vocational education in agriculture of a type not then given, he was one of the pioneers in encouraging secondary education of this character, and appeared before congressional committees over 20 years ago in its behalf. The passage of the Smith-Hughes bill providing for a broad program of secondary vocational training in agriculture is the result of the efforts begun by a group of far-sighted pioneers of which Dr. Hunt was an active member.

In the field of agronomy he left his mark both as a teacher and as an investigator, and in addition to bulletins and similar publications the standard books—"The Cereals in America," and "The Forage and Fiber Crops in America"—attest his achievements in this field.

The period of his administration covering the past ten years here in this State has been marked by great advances in many branches of the activities of the college. The beginning of this period was marked by the passage of the Smith-Lever bill in Congress, providing for extension work in agriculture and home economics through co-operation between the Federal, State and County governments. The development of this work in California to the point where it is acknowledged second to none in the United States in point of organization and effectiveness of results has been one of the outstanding achievements of his administration.

The selection of B. H. Crocheron, a former student of his, to carry out this particular activity of the college is but one indication of the ability so well displayed throughout his career to judge men and to make the proper appraisal of them for important positions.

The State owes many other things to Dean Hunt, and the men who carried on the work under him. The development of the Citrus Experiment Station; the establishment of the branch of the College of Agriculture at Davis with its four-year collegiate course; the development of an outstanding School of Forestry; close co-operation in the teaching of agriculture in the high schools of the State; active participation of the college in the problem of land settlement in California through the Division of Rural Institutions, headed by Elwood Mead—these are but indicative of the far-reaching contacts of the college that have become so important a part of rural life in California during the past decade.

In the field of rural economics and sociology, as it affects national and international relationships, Dr. Hunt has become an international figure whose services have been requested by the Government on more than one occasion. During the war, as a member of the American Commission on Agriculture, he studied the agricultural problems of the Allies in an effort to learn in what ways this country could be of greater assistance in the successful prosecution of the war through better food production.

In 1920 he served as the permanent American delegate to the International Institute of Agriculture at Rome and rendered particular service in the formulation of better plans for correlating the crop reports and other economic statistics of international importance.

His far-sighted and quick grasp of fundamentals, his ability to stick to them, his enthusiasm and thoroughness have marked every task to which he has been called. These qualities with an unselfish willingness to serve, have made for him an enviable place of leadership in agricultural education.

The influence that a teacher unconsciously exerts over his students is too intangible to estimate, but it is in the last analysis the most important factor. The viewpoint of youth, the enthusiasm for real achievement, the zeal of the idealist for high endeavor tempered with sane judgment and thoroughness of comprehension—these have made Dr. Hunt the friendly counselor of the student in whatever institution he has happened to find himself.

ZEAL FOR SERVICE

It is through such contacts that the zeal for service to the community has been kindled to burn permanently in the lives of the graduates and the influence of the institution thereby reaches down deeply into the roots of rural community life. Fortunately for college and student, Dr. Hunt remains in the service of the institution as a teacher and investigator in the field of comparative agriculture, for which by training, experience and taste he is so ably equipped.

His resignation as Dean brought about by ill health, though a great loss to the college in leadership, is partly compensated by the greater gain to the student through an increased association and a closer contact than was possible before.

In addition to books already mentioned, several other volumes have been produced in the spare moments of an active life: "A History of Agriculture and Rural Economies"; "How to Choose a Farm", "The Young Farmer"; "Soils and Crops"; "Farm Animals"—the latter two prepared in co-operation with C. W. Burkett.

California has been fortunate in having Dr. Hunt's services for such an important period in its agricultural history. His constant efforts to see the problems of rural California in their proper perspective, to make clear their relationships to the entire life of the State, to lay down fundamental lines of procedure for their rational solution and then to initiate activities leading toward such solution, have made for a saner sounder development not only for the California countryside, but also for the entire commonwealth.

Lilacs Make Poor Hedge

AS a rule lilacs do not thrive in California, although in the northern part of the State they grow much better than in the southern portion. The lilac everywhere is a slow-growing plant and seldom should be pruned. For these reasons it is apt to make an unsatisfactory hedge.

California cherry (Prunus ilicifolia), Catalina cherry (Prunus integrifolia), Toyon or holly berry (Heteromeles arbutifolia), or almost any of the Privets (Ligustrum) should thrive in San Mateo County and develop into a very satisfactory hedge, writes Ralph D. Cornell, in answer to an inquiry from R. N. Faulkner, San Mateo.

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Economical Dairy Ration Needed, Says Drumm

(Continued From Page Three)

gested. This holds true perhaps only when feeds are very unpalatable Even though palatability has no influence on digestion, cows must be given feeds that suit their tastes if they are to do their best work, as a cow will not eat all she needs for maximum production if her ration is unpalatable. If feed consumption is not maintained at a high level, the flow of milk cannot be as copious as it might be. Feeds vary widely in their palatability and there is also variation between samples of the same feed.

Animals usually find certain feeds unpalatable at first, but may learn to like them after they become accustomed to them. This is true of such feeds as gluten meal, cocoanut meal and cotton seed meal We find linseed oil meal and wheat bran very palatable and almost any cow will eat them at any time. So we find it necessary to feed some of the concentrates in a mixture of grains in very limited amounts, especially until the animal becomes accustomed to them Among the roughages, the succulent feeds such as green feeds and silage and alfalfa hay are the more palatable.

FEED CONDITION IMPORTANT

The condition of a feed determines its palatability to a large extent. Badly weathered hay and moldy grain are quite unpalatable and great care must be taken to have the feeds in good condition if the best results are obtained in the feeding operations. The individuality plays an important part in palatability. Some animals become tired of a certain feed and refuse to eat it. This is often true when they have been overfed of some particular concentrate. Careful individual feeding must be done if the highest production is to be obtained. It requires skill to determine just what feeds a cow likes and it pays to cater to her wishes.

(4) Economy—It is not practicable to practice strict economy in supplying grain to test animals. They must be furnished with a suitable variety if maximum records are made. Each cow must be fed all she will handle efficiently at all times. It is the outstanding records that pay best and it pays to do the work well. However, the feeder should understand how to figure the cost of digestible nutrients in every feed. Often an opportunity may arise to eliminate some particularly high-priced feed.

USE HOME FEEDS

The most effective way to economize in the feeding of test cows is to use home grown feeds at every opportunity, supplementing them with the purchased materials needed. It is usually considerably cheaper to raise the grains than to buy, especially when they are purchased late in the winter or spring.

The following mixtures have been found suitable for test cows.

AYRSHIRES AND HOLSTEINS 500 lbs. wheat bran, 700 lbs. rolled barley 700 lbs. rolled oats, 100 lbs. linseed oil meal, 50 lbs. cottonseed meal, 25 lbs. salt, 10 lbs steamed bone meal

JERSEYS AND GUERNSEYS 600 lbs rolled barley, 600 lbs. rolled oats, 600 lbs wheat bran, 200 lbs linseed meal, 100 lbs cottonseed meal, 25 lbs. salt, 100 lbs soybean meal, 40 lbs. steamed bone meal

Although some excellent records have been made without feeding any silage, they are rather exceptional. The silo furnishes a cheap, very palatable and always succulent feed that it is difficult to dispense with in making records. However, by feeding green feed, silage crops, and roots, it is possible to get along without silage more satisfactorily in California than in colder sections.

The high producing test cow is doing a tremendous amount of work and she cannot spare the time or energy to obtain any considerable portion of her ration from pasture. However, a moderate amount is desirable, not only for the vitamines it contains which aid in the assimilation of mineral matter but also because it induces the cow to take some exercise, which stimulates production. One to three hours a day is sufficient.

California is fortunte in being able to raise an abundance of alfalfa hay It is the best hay for test cows and they should be given all they will consume It is one of the cheap, home-grown feeds that should be utilized. There is little variation in quality between the different cuttings, but the methods of curing and cultivation have a decided influence on the value Alfalfa should be cured slowly, part of the time in the cock to preserve the green color and retain the leaves. Other hays, particularly the clovers, make very good test cow hay, but alfalfa is the best.

DRIED BEET PULP

Beet pulp is considered almost indispensable by all dairymen doing test work. It is rather expensive considering nutrients, but the physiological effect is a great asset to the ration. It is quite succulent in nature and cooling to cows being forced on grain. Most of the sugar beet companies are adding about 15 per cent molasses when the pulp is dried. The molasses improves the value of the pulp and is an excellent appetizer. The dried pulp should be soaked in four times its weight of water, 18 hours before feeding. Cows will eat five to eight pounds of the pulp per day

Roots and soilage for seasonal feeding are an excellent stimulus to production. They reduce the consumption of silage and beet pulp considerably and make an excellent change for the cows Both yield heavily but considerable expense is incurred in harvesting. Carrots and mangels are the favorite root crops and alfalfa, oats, corn and kale are some of the better soilage crops.

The advisability of feeding certain mineral rations is rather an unsettled question at present. Cows fed a legume hay such as alfalfa, and allowed pasture, probably do not need a mineral supplement badly. However, there is no question but what high production is a heavy drain on the reserve of ash in the body. Many dairymen wishing to be on the safe side are feeding steamed bone meal, raw rock phosphate, or some other desirable mineral ration.

METHODS OF FEEDING

Calving time is a critical period in the life of a cow. She is weakened and of course suffers a loss of appetite. Care should be taken in getting her on feed, especially if the udder is badly caked. Heating feeds such as gluten or cottonseed meal should not be given for several days. The accompanying table gives in a general way the rate to increase the feed. Of course this must be varied some to suit each individual.

The following rations are those referred to in the outline given for getting a cow on feed after calving:

RATION A

600 lbs. rolled oats.
600 lbs. rolled barley
600 lbs. wheat bran.
100 lbs. linseed oil meal.
100 lbs cottonseed meal.
100 lbs. soybean meal.
25 lbs. salt
25 lbs. steamed bone meal.

RATION B

100 lbs. rolled oats.
100 lbs. wheat bran
50 lbs. linseed oil meal.
3 lbs. salt.

After a cow is on full feed, it is sometimes interesting to see how nearly the ration supplied comes to furnishing the requirements given in "Feeds and Feeding" (Henry and Morrison)

Requirements for 1200-pound cow, giving 50 pounds 4 per cent milk for maintenance of body:

Lbs. protein daily	.84
Production of milk	3.00
TOTAL	3.84
Lbs. carbohydrate equivalent	8.67
Production of milk	14.30
TOTAL	22.97

Ration A given above contains 283.3 pounds protein and 1204.5 pounds carbohydrate equivalent The following ration might be used to furnish the required nutrients:

Feeds	Protein lbs.	Carbohydrate equiv. lbs.
16 lbs. Ration A	2.16	9.168
12 lbs. alfalfa hay	1.272	4.92
25 lbs. corn silage	.275	4.1[illegible]
8 lbs. beet pulp	.368	5.36
TOTAL	4.075	23.598

The above ration contains the requirements given with a small excess of nutrients. It is close enough for ordinary purposes. Of course, it is not practical to figure often what a cow actually requires when on test If the general rules mentioned earlier in this article are followed good results will be obtained. However, feeders should know how to figure what test cows require in order to make general feeding rules that are practical.

Advanced Registry

IN 1922 a small group of local breeders of pure-bred Rambouillet sheep met and organized the California Rambouillet Breeders' Association One of the principal objects of the new organization was to form an advanced registry for Rambouillet sheep based on wool production and individual excellence of conformation.

The rules which govern the admission of animals provide certain standards of breed type and a minimum length of staple and weight of fleece. On account of the great variability in the shrinkage of fleeces from different individuals, the fleece weight requirements are put on a scoured basis. Ewes must shear at least 5.25 pounds and rams at least 7.7 pounds scoured weight of wool for 12 months' growth, while the official weights for fleeces of less than 12 months' growth are prorated accordingly A staple of at least 2.5 inches in 12 months is the minimum length.

The owner of the sheep selects the individuals he wants tested and the wool specialist of the College of Agriculture of the University of California witnesses the shearing and records the date. This fleece is not scoured, but the next fleece, also shorn in the presence of the university representative is used to make the test. Scouring is done by the college so that the data secured are official and impartial

To date 40 Rambouillets, mostly ewes, have been tested for advanced registry. The owners exercised such rigid selection that only two animals among those for which application was made failed to meet the requirements. The data indicate that although a correlation exists between the grease weight of a fleece and the scoured weight, this correlation is small The shrinkage varied from 55.91 per cent in a 6-months fleece to 70.7 per cent in a 12-months fleece

The heaviest fleece submitted weighed 20.9 pounds and to the ewe which produced it also goes the honor of producing the greatest yield of scoured wool—7.52 pounds.

The importance of basing the eligibility for advanced registry upon the scoured weight of wool instead of upon the grease weight is apparent from the fact that one fleece of 13.95 pounds submitted for the test yielded 5.[illegible] pounds of scoured wool while another fleece of 18.2 pounds weighed only [illegible] pounds after the grease and dirt had been removed. Manufacturers when buying wool are interested only in the net yield, as the grease and dirt have no value for textile manufacturing J. F. WILSON, Assistant Professor of Animal Husbandry, University of California, Davis.

Hogs on a Fruit Ranch

FROM a half-acre alfalfa patch in front of his house, that [illegible] a [illegible] with the help of cull grapes [illegible] the packing houses and a little [illegible] Swain Thornwaldsen [illegible] of Exeter, has a fine side line with [illegible]

The pens are not far from the alfalfa which is cut and fed green As soon as the fruit season starts he [illegible] grapes from the packing house [illegible] continues to get them until [illegible] winter, when the last of the Emperors have gone. Grapes [illegible] are poor hog feed, but with very little from the alfalfa patch and a small amount of grain and mill feed, the grapes are of high value [illegible] they cost [illegible] nothing.—[illegible]

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Raising and Selling 50,000 White Pekin Ducks

Sonoma Poultry Woman Overcomes Numerous Difficulties in Producing and Marketing Water Fowl

By O. H. BARNHILL

PRODUCERS of commodities which are for sale, whether it be fruit, flour, poultry or peanuts, usually welcome favorably publicity. Large Pacific Coast duck growers appear to be an exception to this rule.

"It's because our limited market already is oversupplied and we feel that if others are encouraged to go into the business our selling burdens will be increased," explains Mrs. Louisa Ward, manager and principal owner of the Pacific Duck Ranch, near Petaluma, where last year 74,000 white Pekin ducks were hatched and 54,000 sold.

"That sounds reasonable," admitted the writer, who explained that the purpose of ORCHARD and FARM in publishing articles about ducks was not to boost the business of raising them, but to inform readers regarding a branch of the poultry industry which in some parts of the country has been developed to important proportions.

As for the market end of the business, which undoubtedly is the most vital factor of the industry, duck stories set people to thinking about this particular fowl, which generally is considered most delicious eating.

Roast duck and apple sauce make an epicurean dish fit for the most fastidious, one which would be welcome in almost any home. Turkey is eaten mainly at Christmas and Thanksgiving, but there is no good reason why ducks should not be consumed every month in the year. If people knew where fat young ducks could be obtained at all seasons, the demand for this delicious water fowl no doubt would greatly increase.

KEEPS ENORMOUS FLOCKS

Considering the matter from this standpoint, the duck lady was willing to exhibit her numerous quacking brood, which numbers about 20,000 birds of various ages. Some 2000 are kept for breeding purposes, the main work consisting of hatching and raising ducklings until they are 11 weeks old, which has been found the most profitable age to sell.

Hatching duck eggs is a difficult process, requiring that all conditions shall be exactly right. In order to permit of greater ventilation, the entire bottoms of incubators are removed. It was found electric incubators cannot be operated at more than 90 degrees, although gas machines are run at 101. The explanation seems to be in the greater humidity of electric heat, a certain degree of atmospheric aridity being necessary for successful incubation.

The brooder houses are long, wide buildings with the floor divided into knee-high pens on either side of a central alleyway. Heat is furnished by two three-inch hot water pipes running through the pens near the alley. The pipes are about one foot from the floor and are covered with boards which extend two feet over the inner ends of the pens.

Openings in the wall give the ducklings access to outside yards, where there always is plenty of fresh water, the supply of which is automatically regulated. The problem of keeping things clean around the trough is solved with sloping board platforms, which extend clear across the outer ends of the pens. A wooden V-shaped trough just outside the pen and under the lower end of the platform catches waste water and refuse.

DIFFICULTIES ENCOUNTERED

"What troubles the ugly ducklings—and the pretty ones?" Mrs. Ward was asked. "Almost everything except insects," she replied. "They take cold easily, sometimes even during warm, summer weather, when they have access to a heated hover. Ducklings are subject to intestinal troubles and sometimes their eyes become infected and their bills get soft. Leg weakness and hip trouble are common. Runts and sick birds continually must be weeded out. Eternal vigilance I have found to be the price of duck success."

The feed mill and storage barn constitute quite a factory. The duck ration consists principally of cornmeal, bran, ground barley, low grade flour and chopped kale or green barley. The green appearance of the latter attracts the favorable attention of hungry ducklings.

The mash is mixed by machinery and fed wet, just moist enough to stick together, the glutinous nature of the flour being useful here. From the mechanical mixer the mash is dumped into small cars and from there shoveled into large tin buckets, which are hauled to the feeding pens and emptied into wide, shallow troughs. During the last three weeks, or fattening period, an especially rich ration is fed.

At night the duck houses are lighted by electricity, as these fowls are very nervous and afraid of the dark—or rather shadows. A passing auto headlight, for example, is apt to throw the ducks into a panic, unless they can take refuge in a lighted room.

If California consumers were willing to have their ducks scalded before the birds are picked, as is the custom back East, it would greatly simplify the work of dressing ducks and lessen the retail cost. Plucking feathers from a duck may seem like a very simple process, but it isn't—and good pickers are hard to find. An expert sometimes will strip over 100 birds a day, making good wages at the customary price, 10 cents each, but the average picker has to work hard to make fair wages.

It costs $2 a dozen to dress ducks. The fowls are hung over a barrel while being picked. Killing is accomplished by opening the jugular vein. Feathers usually bring from 18 to 26 cents a pound.

One of the most difficult things about the duck business is to get rid of the birds at just the right age—11 weeks. The profit of raising them increases up to that time, but afterwards decreases rapidly, because ducks begin to lose their feathers at that age and to "eat their heads off," as the saying goes.

PROFIT MARGIN SMALL

The cost of raising a duck to marketable age is estimated at 83 cents. At 25 cents a pound a 5-pound duck brings $1.25, which would seem to leave a fair margin of profit, after the production cost is subtracted. If every duckling hatched grew to marketable size in 11 weeks this might be true, but the losses from disease and other causes are very great, amounting in 4000 at the Pacific Duck Ranch in what was considered a favorable season.

Thirty cents a pound is considered the minimum price for which ducks can be produced at a profit, but Pacific Coast growers cannot count on even this price. In the vicinity of New York, where a single duck ranch produces as high as 300,000 ducks a year, up to 40 cents a pound is received. During the recent era of high prices, California ducks sold as high as 39 cents, but some growers even then lost money in the business, because they were unable to obtain enough help to market their birds at the right time.

The only other large duck ranch in California is the Reichardt farm, located near Colma. For a few years this ranch marketed the output of the Petaluma farm, but each concern now sells its product separately.

San Francisco is the main market for California ducks, and Jews and Chinese are said to be the principal customers. The former, by the way, are the main consumers of California eggs shipped to New York, according to Fay Johnson, manager of the Poultry Producers of Central California.

The Pacific Duck Farm comprises 33 acres, all of which is devoted to the duck growing plant, although horse and cow feed is grown on 10 acres and consumed on the ranch. Mrs. Ward's son, Marion, is a partner in the business. Four men are hired regularly to assist in the work.

The farm was established 13 years ago, the proprietors having come from the East to the "Poultry Capital of America," attracted by opportunities in intensive farming. Ducks, rather than chickens, were chosen because no one in that district was growing the former, and it was thought the business therefore would not be crowded.

Vitamines Valuable

A MAN who thought himself a scientist was remonstrating with a farmer for feeding his hogs so much succulent green feed. "Why man, 90 per cent of that green feed is water."

"Well," said the farmer, "it is mighty good water and the pigs thrive on it."

In like manner, it has been noted for a long time that feeding sprouted oats and barley to hens, especially during the fall and winter months, tended to produce more eggs. Hundreds of poultrymen have failed to make the poultry game pay because they depended exclusively on mangles, cow melons and pumpkins for green feed. Books told them that these were valuable, but the hens lacked something essential which we call vitamines.—M. A. SCHOFIELD.

This view of newly hatched ducklings on the Pacific Duck Ranch shows how the fowls are kept in separate small pens. No expensive equipment is required, but great care is necessary in feeding and brooding.

Little Stories in Pictures

These Napa County twins are husky bottle fed babies. Many a dollar has been added to the housewife's pin money or the children's bank account by hand raising "bummer" (orphan) lambs.

Trust the kiddies to make good use of the irrigation reservoir during coming summer days. What splashing! What adventure! Who cares if the thermometer does soar!

Although machine harvesting is displacing the corn knife on many large ranches, this canvas picking bag is popular among milo maize growers. It is emptied through the bottom.

Although steel fence posts appeal to the business farmer, because of their long life and durability, the concrete post has many virtues, not the least of which is its attractive appearance. This fence adorns the Alfred Abraham farm, near Albany, Oregon.

Shade for the poultry yard is considered very important by many breeders and egg farmers. L. C. Hines, owner of this plant in the San Fernando Valley (Los Angeles County), planted peach trees with a dual purpose. The hens will benefit by the shade and the family by the fruit.

Hawaii boasts much modern dairy equipment. This is the interior of a milking barn owned by the Lihue Plantation Co., Ltd., Lihue (Kanai).

ORCHARD and FARM

CALIFORNIA STATE

MAY 18, 1924

Former Miner Finds Fruit Wealth in Sonoma Soil

Raises Forty Carloads of Apples Annually—Thinning Overloaded Trees Biggest Job

AN INTERESTING example of co-operation between two distinct industries in one county is found in Sonoma, where Sebastopol orchardists buy fertilizer from Petaluma poultrymen. Just at present both districts are confronting a similar problem—apparent overproduction and low market prices in the face of heavy operating costs. This apple grower, however, believes it pays to "stick" through ups and downs.—*Editor.*

By O. H. BARNHILL

FROM delving deep into the earth in search of mineral treasure, E. O. Nelson, Sonoma orchardist, turned his attention to mining food products from the soil, prefering to work closer to the top of the ground. A miner's life is a hard one and doesn't permit of a settled abode.

Having explored the Rocky Mountains from Alaska to Mexico, Nelson, seventeen years ago came to the famous Gravenstein apple district adjoining Sebastopol, bought an orchard in the Gold Ridge section and settled down to the peaceful pursuit of producing fine fruit for the wholesale trade.

The name "Gold Ridge" is pleasantly suggestive of mineral wealth, the climate agreeable and the location superb. With nearby orchard homes on all sides, a magnificent ocean beach just beyond the western hills, the beautiful Russian River close at hand and the great city of San Francisco within 150 minutes by boat and auto—what more could the heart of man desire?

Thus reasoned the newcomer who built a comfortable home and later secured the only other factor needful to complete an ideal existence—a capable wife, who gave up a successful career as graduate nurse to make a happy country home, over which she gracefully reigns.

The Nelson orchard now comprises 100 acres of apple trees, which produce annually about 750 tons of fine fruit—33 000 boxes or 40 carloads.

SPECIALIZES IN GRAVENSTEINS

Prune and other unprofitable trees have been replaced with Gravenstein apples for the production of which this region is peculiarly suited. Farther south the soil is richer and grows bigger trees, but they do not bear nearly so well. Overbearing, in fact, is one of the worst faults of Gold Ridge trees—if it can be called a fault.

"The Gravenstein has a very short stem," explains Nelson. "Unless the little apples are removed soon after setting, they will crowd each other off the fruit spur. One who has had no experience in the work has no idea the amount of labor it takes properly to thin a large apple tree. I've known a man to work all day on one tree. Severe thinning is necessary to make the fruit size up properly, especially on large trees."

LARGE YIELDS NECESSARY

More than half of Nelson's trees are Gravensteins, the balance being mostly Spitzenburg, R. I. Greening and Skinner's Seedling. Forty five trees—one acre—of the last named variety one year yielded 1300 packed boxes. (If any other grower can beat this record an account of the crop would be welcome.—Ed.)

"Profitable apple production is largely a matter of big yields and good prices," asserts Nelson adding. "We can in time take care of the heavy crops but at present have no control over prices. Our larger trees are fifty years old and yield thirty boxes each—we have picked as high as fifty-seven boxes off of a single tree in a single season."

Cultivation consists in plowing the ground in the spring before it begins to dry out, and then cultivating with a double disk, which leaves the ground level and is superceding all other tools for record cultivation.

No satisfactory cover crop has been found, but "filaree" (alfilaria) and burr clover volunteer to some extent. Vetch has been tried and found wanting, there being not enough moisture to start growth until November, after which the plant grows only a few inches until November, after which the plant grows only a few inches until March when it has to be plowed up to keep the ground from drying out. If irrigation were practical vetch doubtless would be a profitable orchard crop in this district.

Chicken manure, most of which comes from the nearby Petaluma section, is the main material used for maintaining soil fertility in Sebastopol orchards. It costs $6 a ton and five tons are spread over an acre of ground every alternate year. At least that is the aim.

COMMERCIAL FERTILIZER USED

Where not enough of this fertilizer is obtained, nitrate of soda is used to "piece out." Because of its very soluble nature, it is easily wasted by rain, therefore, rain best be conserved by cultivating in the soil, rather than by depending upon rain to wash it into the earth. In order to sweeten the soil, lime has been used but in the experience of this orchardist—it is impossible to apply enough to counteract soil acidity judging by the humus lost.

The system of pruning generally used in the Sebastopol district provides for five main scaffold limbs which are grown sufficiently upright to permit of close cultivation. Cross limbs are removed and the fruiting wood sufficiently thinned out to permit the fruit to color up well in all parts of the tree. Growers gradually are getting away from the old cut back practice, adopting a modified system of long pruning.

A thorough application of lime-sulfur solution is given the trees in the spring shortly after the buds have begun to swell, to kill scale and scab. This spray is supposed to keep aphis in check also.

For the sake of economy Nelson makes his own lime-sulfur spray, boiling the materials in an open tank over a wood fire. To 33 pounds of lime, 66 pounds of sulfur and 50 gallons of water are added and the unsavory mess boiled 45 minutes. The secret of success, explains this orchardist, is to stir the solution until it begins to boil and for a few minutes afterwards. Otherwise, a large part of the solids will sink to the bottom of the liquid.

"Liquid lime-sulfur costs 17 cents a gallon, powdered, 27 cents, while I buy the materials for 13 cents."

The codling moth is controlled with arsenate of lead. In treating Gravensteins for this ubiquitous apple pest, the first or calyx spray, which is generally considered the most important, sometimes is omitted, the larvae being poisoned after they hatch out and begin to eat into the fruit. Only one codling moth spray is considered necessary for this early variety. For other kinds, two or three sprays are applied.

How profitably to dispose of cull apples is a big problem in the Sebastopol district. The percentage of fruit rejected by the packers varies from 10 per cent for Gravensteins to 50 per cent for some winter varieties. The Sebastopol Apple Growers' Union returns all cull fruit to the producers, passing the buck back to them, so to speak.

Most growers dry their culls, there being 125 apple dehydrators in the Sebastopol section. Nelson dried 5[illegible] boxes last year, the price received being 9 cents a pound.

PROBLEM OF DRIED FRUIT

"If I had kept my dried apples until March I could have sold them for 13 cents," he relates. "The price of this product was so low last fall in New York State—where most of the dried apples come from, that a comparatively small quantity was dehydrated. When these were cleaned up prices naturally advanced.

"It takes only seven pounds of raw apples to make one pound of dried, compared to 12 pounds of truck-grown Oregon and Washington stock. Northwest growers claim their fruit is superior, but drying shows which apples contain the most substance. Because the Northwest apples contain so much water, seldom can they be dried profitably. We figure that we can get at least $10 a ton for our culls by drying them, although as high as $60-$7 a bushel—has been obtained."

APPLES "DRY OUT" WELL

Large quantities of second grade apples are transported by truck to the Bay cities and sold direct to dealers. Last fall 40 loads were disposed of in this manner. A three and three-quarter ton fast truck is used and the round trip is made in 11 hours.

Thirteen years ago Nelson helped organize the union previously mentioned. He still is one of its directors and owns $1000 worth of stock in the concern, but is dissatisfied with the management and is planning to quit selling his own apples this year. He admits, however, that the union has improved the apple market and is of real benefit to small growers and those who are unable to market their crop effectively.

E. O. Nelson (at right) produces annually about 750 tons of apples. More than half of his trees are Gravensteins. Part of the orchard is more than 50 years old.

Below is shown the attractive Nelson home near Sebastopol

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY

MAY 18, 1924

Ripe Olive Marketing Possibilities and Problems

Potential Consumption Far Exceeds Present Production but Advertising Cannot Work Magic—Consistent Publicity Will Produce Results in Time

By J. J. HOEY

Secretary California Olive Association

WHEN will the consumption of ripe olives in the United States equal that of the green olive pickle, imported from Spain?

Those who have studied the olive-eating habits of our population along the Atlantic Coast and, for that matter, as far west as St. Louis, are impressed by the fact that THE olive in this Eastern territory is the green olive. The popular conception of the olive in the Eastern portion of our country is that the fruit is greenish yellow, large, and piquant in flavor due to the high percentage of lactic acid and salt.

J. J. HOEY

Against this conception of the olive, the California grower and packer contend in their merchandising with more or less success; with but a small measure of success, it must be confessed, in the big Eastern cities. The country as a whole consumes annually about 8,000,000 gallons of green olives as compared with a consumption of about 3,000,000 gallons of ripe olives!

The green olive pickle of Spain established itself in this country a great many years ago and the taste for this product has increased steadily. People along the Atlantic Coast until recently knew of the olive only in this form. Repeated trials of the fruit resulted in creating a general liking for it. And as an appetizer or relish, the green olive is decidedly of value; hence the growth of the green olive business in the United States.

RIPE OLIVE GAINS FAVOR

It is only about twenty years since the ripe olive first made its appearance in the Eastern cities. Our first efforts to sell ripe olives in the East were discouraging because the trade and public could not readily become reconciled to the idea of a black olive put up in a can.

The color of the ripe olive, strangely, was a disadvantage: it was dark brown or black and no one in the East had ever seen such an olive before that time. The first reaction of both trade and consumer was the feeling that something must have happened to this ripe olive to cause it to take on a dark color probably some defect in either the fruit or its processing.

Again, the texture and flavor of the ripe olive are so absolutely different from those of the green Spanish pickle that the consumer was further prejudiced against our product. It did not have much salt (not nearly half as much as the green olive), it had no lactic acid flavor whatever, and it impressed most of the people who gave it a trial as being "flat."

AN ACQUIRED TASTE

Prepared to taste something similar to the Spanish green fruit, the consumer was disappointed in finding that the California ripe olive was tender instead of tough, bland and oily in flavor, and scarcely salty at all. Of course, after one had tried ripe olives a few times he grew to prefer this oily, nut-like, distinctive flavor and tender texture, in fact, many consumers reached the point where they preferred the ripe olive and reduced their consumption of the green one, if indeed they did not discard the latter entirely. How, then, can more people be persuaded to give the ripe fruit a trial: how can consumption be increased more rapidly?

When we speak of advertising ripe olives in order to increase their consumption we must take into account the [illegible] of the green olive [illegible] of the Eastern [illegible] the fact that no one, [illegible] readily takes to the [illegible] of a new and entirely different [illegible]

[illegible] fundamental point, and the [illegible] at the outset probably [illegible] disappointment [illegible] who seek to popularize [illegible] olive by advertising [illegible] of their work [illegible] product

and people who have had no previous acquaintance with it are not likely to become enthusiastic on the first trial; indeed, such consumption of ripe olives as we have created in this country has come about as the result of repeated trials, and rarely ever after the first demonstration.

The Californian who either grows olives himself or has been consuming them for years until it has become almost a daily habit, is very apt to presume that all that is needed in order to get the Eastern people to eat ripe olives is to give them a taste of the fruit. This is far from the truth, the writer is sorry to say. Experience in

with this unique fruit they became very enthusiastic.

These California ripe olive enthusiasts must make the same allowance for the Easterner that was necessary in their own case and just as surely as Californians learn to like ripe olives, the Eastern people will also come to have the same high regard for the fruit. Education, and a great deal of it, sampling and demonstration, and the repeated serving of the ripe olive to the prospect, the power of example as set forth by the finding of olives on the menus and on the tables in restaurants, cafes and fine hotels and dining cars—all of these provide the

Olive Packing Scene

The California olive industry affords employment to hundreds not engaged directly in production. Its expansion depends largely upon acquainting Eastern consumers with the superior qualities of our ripe fruit as compared with the imported Spanish product, pickled green.

demonstration in the East has convinced him that the first demonstration or trial of the ripe olive is likely to be disappointing in 50 per cent of the cases.

This already has been explained by the fact that the Easterner is either a devotee of the green Spanish olive or else he has had no experience with olives of any kind. Either or both of these classes of prospective consumers must learn to cultivate the taste for the ripe olive. In most cases, however, those who have been accustomed to eating green olives learn to like the ripe fruit more readily.

If our own people will only think back a little to the time when they themselves first tried ripe olives, they will realize that the fruit did not taste nearly so delicious on the first trial as it did probably on the fifth or sixth; in other words the liking "grew" upon them, and after several experiences

means by which people may be caused to develop an interest in the ripe olive and a liking for it.

If we delude ourselves at the beginning into the belief that magical results will follow our first season's advertising, or our first demonstrations, for that matter, we are making ourselves liable to keen disappointment. The growth in the consumption of ripe olives is not going to come about so quickly or so easily. This is set down here so that the many readers of this publication who are interested in the development of California fruit industries, and those who are particularly interested in the future welfare of the ripe olive business, may have a real practical view of the situation based on a knowledge of the facts.

Today there is the keenest competition among producers and manufacturers of foods to get the attention, interest and patronage of the consuming public. This competition has developed a very high order of advertising and selling ability and has brought about the use of every known medium of value to carry the message of the producer or manufacturer to the prospective user.

The finest of art and the most inspired brains of the country are employed continually in producing educational and selling literature to promote the knowledge of the great number of products seeking a place on the consumer's table.

Success has attended these efforts in so many cases that it has come to be an accepted belief that all one needs to do in order to sell his product in great quantities to the American housewife is to buy space in magazines, billboards or street cars or make use of other standard media. There is a little too much optimism in this belief.

We grant the success that has crowned many campaigns but we must not forget that each success, when analyzed, will disclose that a great deal of preparatory or ground work was necessary before the campaigns were started. Much patient effort was expended in developing, improving and changing the appeal in the advertising to meet varying conditions and to reach and convince differing types of people, and, greatest of all, the element of time entered into the matter to a marked degree.

CONTINUOUS EFFORT NEEDED

Few successes in advertising foods have come about in a year or two; nearly all of the oustanding examples of success in promoting new products will be found to have resulted from years of continuous, intelligent effort even when there was no distinct prejudice to overcome.

It is an axiom that the public consumes just so much food and no more. People do not, according to this view, keep on increasing the amount of food they eat in proportion to the number of new products placed on the market. This would be a physical and a gastronomic impossibility.

Therefore, it is reasoned that when a new product is introduced to the American household and its use engendered, it displaces some other product or reduces the amount consumed. This seems altogether a sound bit of reasoning and it is well to keep the point in mind when one starts out greatly to increase the consumption of a new product.

But we increase the consumption of our ripe olives to a very great extent, fortunately, before we run up against this established fact. We say "fortunately," because it so happens that ripe olives are now being used by less than one-tenth of the number of people who can and who would make a place on their tables for this fruit if they knew its real value and understood how, by serving ripe olives, they would provide not only a unique and delicious relish, but also a food of very high value.

TEN MILLION PROSPECTS

If there are at least 10,000,000 families in the United States who are prospective ripe olive users, and proper and effective educational methods are employed to bring about their use of this fruit, we would need greatly to increase our output.

Ten million families using on an average of six quart cans of olives per year would consume 2,500,000 cases annually (a case is twenty-four quarts). Our present production is nothing like this. So we see there is a vast field awaiting development in the promotion of the California ripe olive but, reverting to the statements previously made, the results of our work in this field will be measured in gradual year-to-year increases, as more and more people learn to like the ripe olive and, having become enthusiastic about it, turn missionaries who will introduce the product to their neighbors, friends and guests.

We shall not be able to double the present consumption in one year or two or three, but if we go about the task sanely and with the knowledge that we cannot expect to create consumption by waving the magic wand of advertising for a season or two, in time we shall reap our just reward and succeed in developing a demand for the ripe olive in this country that will certainly exceed the supply of fruit from present plantings.

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY

By THE EDITOR

UNCLE SAM AT THE HELM

Now that centralized control of the foot-and-mouth disease situation has been taken over by representatives of the Federal Government, there should be less confusion on the part of county and State forces and the long-suffering public.

As this is written, the situation is still extremely serious. It may be many months before the disease is stamped out. Meanwhile we repeat our request on behalf of livestock owners, all farmers, and business generally: OBSERVE ALL REGULATIONS SCRUPULOUSLY, EVEN THOUGH THEY MAY SEEM UNREASONABLE!

When local officials apparently display poor judgment as developed later by changes in the quarantine rules, let us assume they are doing the best they can and, in the meantime, abide by their decisions. At best, all are groping more or less blindly, fighting an elusive, mysterious foe. They need all the help and support we can give them! Would we want their responsibility?

FAMOUS BREEDERS HARD HIT

When the livestock malady strikes at the heart of California's finest registered herds, then we know it at its worst. And one cannot blame the owner of such animals for feeling bitter when the death sentence is passed upon individuals which represent years of patient selection and financial sacrifice.

Comparable to the loss of such a breeder is that of the home owner whose finest and choicest possessions are suddenly destroyed by fire; or the artist whose masterpiece is ruined or stolen; or the man whose life savings are wiped out overnight!

The value of such animals cannot be measured in money. Who can say what world-record offspring they might have produced and what prices their progeny might have commanded in future years!

Even were it possible for the owner to secure as compensation the highest price he has ever refused for a breeding animal, or its purchase price, the financial loss alone is incalculable, not to mention the grief and disappointment he suffers. Yet appraisals of such condemned cattle manifestly cannot be based upon possible future valuation. Costly insurance is the only protection, and that is woefully inadequate!

ARE WE REALLY ENLIGHTENED?

One cannot help feeling there should be some way to isolate and treat the Tilly Alcartras, Sir Aagie de Kol Meads—all the famous individuals that have made California livestock history. The layman may be pardoned for ascribing to hysteria the wholesale slaughter of such fine stock.

Some day enlightened veterinarians will look upon the present method of combating this disease as barbarous. Meanwhile, however, we can do no more than accept the dictum of the best-informed scientists and swallow the bitter pill with as good grace as we can muster!

THE SELF-SUPPORTING FARM

"Not since the days of homespun clothing and tallow candles has it been so necessary to make the farm produce most of the family's living," asserts the U. S. Department of Agriculture. "The surest way to make wages these days is to put some labor on vegetables, meat, fruit, wood, poultry and dairy products for home use."

More truth than poetry there! And this will make available more money to put into machinery, farm supplies and needed equipment.

WHAT'S NEW? *Keeping Abreast of Agricultural Progress*

Radio Market Reports

RADIO broadcasting as a means of disseminating market information was given a thorough trial during the past year and has fully demonstrated its value, declares the United States Department of Agriculture. Upward of 75 broadcasting stations in all parts of the country now flash out the department's reports.

Dairy Division Now Bureau

ADVANCE of the Dairy Division of the Bureau of Animal Industry of the U. S. Department of Agriculture to the rank of a Bureau, of equal importance with the one of which it was formerly a part, has been approved unanimously by the House of Representatives, according to a message received by California Dairy Council from Sam H. Greene, secretary.

Natural Cover Crop Succeeds

A NATURAL cover crop demonstration was conducted in a pear orchard at Hopland (Mendocino County). The cover crop was the result of last year's management, which permitted the natural grasses to reseed themselves before they were turned under. The result has been a perfect stand of burr clover, which practically covers the ground and attained the height of more than 12 inches. Yields were determined on hairy vetch cover crop demonstrations on two farms. The result showed 22 and 32 tons of green material per acre respectively.

Many Small Co-ops Succeed

A STUDY of the relative size of various co-operative organizations shows that more than 25 per cent of 585 fruit and vegetable marketing organizations do an annual business of $20,000 or under, says the United States Department of Agriculture. The business of 4 per cent exceeds $1,000,000 annually. Of 1139 farmer-controlled creameries nearly 60 per cent do between $21,000 and $100,000 annually. Twenty-three per cent of 1861 grain associations do between $61,000 and $100,000 annually, and 14 per cent between $201,000 and $300,000.

Spacing Dwarf Milo Maize

A DWARF milo maize plant needs four square feet of space in order to grow to the best advantage, according to L. G. Gore, director Meloland (Imperial County) experiment station, who has made a number of tests to determine how this crop should be planted. When the rows are three and one-half feet wide the seeds should be dropped 15 inches apart; if the rows are a foot wider the plants may be nine inches apart.

July was found to be the best month to plant milo, which yielded more than three times as much when started in this month as it did when the seed was put into ground in May or June.

Kern Boosts Strawberries

AT LEAST ten farmers in the vicinity of Shafter (Kern County) are growing strawberries as a result of the success of H. Kretchmar, who is said to have made a net profit of more than $1000 from an acre planted to this fruit. Kretchmar has 22 varieties of strawberries, of which one developed by Albert F. Etter, the Humboldt County plant wizard, has proved most profitable. C. O. Annin, another Kern grower, is said to have produced berries of the "Ettersburg Eighty" variety which yielded at the rate of 15,000 boxes per acre and some of which measured more than 6 inches in circumference.

Marketing Persimmons Is Topic

THE marketing committee of the Persimmon Growers' Department of the Southern California Farm Bureaus met recently in the office of the Los Angeles County Farm Bureau to discuss marketing studies now under way and outline tentative plans for the 1924 season. Because of the increased acreage which is already coming into bearing the organization is looking toward the development of new markets in order that the crop may be properly handled.

Is Livestock Losing Out?

FOR every 100 persons in the United States in 1850 there were 100 sheep and 150 hogs; now there are only 35 sheep and 50 hogs per 100 population, according to E. M. East, writing on "Our Changing Agriculture," in a recent issue of Scribner's.

The per capita consumption of meat has dropped from 182 pounds to 138. This means that if people were eating as much meat now as they were during Civil War times the market for livestock would be approximately $500,000,000 greater than it is now.

Sheepman Uses Weather Bureau

AN INTERESTING example of how the U. S. Weather Bureau may serve stockmen is afforded by the experience of a Western flock owner. Having suffered losses at lambing time for two years, he requested an opinion as to probable weather conditions nearly five months in advance. He was informed that forecasting so far in advance was impossible, but a comparison of the records for several years was made for his benefit. As a result a period of relative safety, beginning five days after the usual lambing period, was discovered. By taking advantage of this finding he has avoided serious losses for two seasons.

BOUQUETS or 'BRICKBATS'

An Invitation to Speak Frankly

WHAT can we do to improve ORCHARD and FARM and make it more helpful and interesting? What, in your opinion, are its best features? What fault, if any, do you find with it?

We want the comment, criticism or suggestions of our readers. No strings to this and all letters confidential. Honest expressions of opinion, whether in the form of "bouquets or bricks," are always valuable. Particularly do we hope to receive constructive suggestions that will aid us to be of greater service. Write the editor today. Thank you.

Concrete Proves Permanency

A REMARKABLE demonstration of the permanency of concrete roads is cited by the Highway Magazine, which describes the Via Appia, built in 312 B. C. by the early Romans and now more than 2200 years later, in good condition for travel. Part of the road was uncovered in 1853, after having been buried for centuries, and found well preserved, the report states.

Deferred Grazing Gets Results

DEFERRED or rotation grazing demonstration plats have been established in a number of California counties through the efforts of the agricultural extension service, to aid in improving pasturage. In Shasta County a pasture from which the cattle have been removed early enough in the spring to allow the forage to develop and reseed for three seasons, produced in 1923 $1\frac{1}{2}$ tons of good forage per acre, while only one-half a ton per acre, largely weeds and unpalatable forage [illegible] from a similar portion of the same range which was grazed continuously.

Cattle-Tick Eradication

EXPERIENCE shows that it is possible to eradicate cattle-fever ticks anywhere, even on swampy brushy, free range land, asserts the United States Department of Agriculture.

To convince the skeptical observer, the department shows a picture of such land, where eradication was accomplished and which has been free from ticks ever since. Dipping cattle kills the ticks before they develop to the reproductive stage, and ticks that do not get on cattle die in a few months. Thus the cattle-fever tick becomes extinct in one season in localities that conduct thorough, systematic dipping.

Lime Not Good For Lawns

THE use of lime on lawns is not, as a rule, conducive to the best results, says the United States Department of Agriculture. There is a popular notion that Kentucky bluegrass must have lots of lime to do well, but many demonstrations have disproved it. What this excellent lawn grass needs is a rich soil. Much lime on lawn soils is not desirable, for the reason that it has a tendency to encourage the growth of the weeds, which are easily able to compete with the lawn grasses when lime or alkaline reacting fertilizers are used. Acid reacting fertilizers lessen weed trouble. Many persons believe that the presence of moss in a lawn is an indication of an acid soil but the department says it is an indication of poor soil.

Reveries of a Rhymester

By JASON WELLS

WHEN the calves are in the pasture
  And the lambs are with the flock—
When the hired man moves slowly,
  With his eye upon the clock—
When the roosters are a' fightin'
  And th' pullets try to sing,
Then we never need a calendar
  To know that it is spring!

OH, it's then responsibility
  Is somethin' made to shirk,
And a feller longs to throttle him
  Who first invented work.
There's a softness in the atmosphere
  And also in the brain.
The breezes then are balmy, and
  Likewise the lovesick swain

SWEET music comes a' trillin'
  From a thousand feathered throats.
The weary plowman [illegible]
  The horses feel their oats
It's th' [illegible]
  The [illegible] time of year.
Yes, we don't need a calendar
  To know that spring is here!

Efficient Operation of a Large Tractor Fleet

How "Iron Horses" Are Managed on a Four Thousand-Acre California Fruit Farm—Businesslike Methods

By J. P. FAIRBANK

Extension Specialist in Agricultural Engineering, University of California

SIXTEEN tractors, all of one make, furnish most of the power for the field work on a 4000-acre peach and apricot ranch, owned and operated by the California Packing Corporation, is a good example of how engineering practices can be applied to agriculture. There are many interesting things on this ranch but this article will be restricted to its farm power.

Sixteen large tractors are capable of doing a great amount of work if they are used efficiently. To make good this "if" is the job of their tractor foreman. He is told by the ranch foreman what field work must be done and when. The tractor foreman routes his tractors and machinery in such a manner that the work will be done when wanted with the least possible "dead time" spent moving an outfit from one part of the ranch to another.

Naturally this foreman must see that all his equipment is put in good operating condition and kept that way insofar as possible. His crew is housed and boarded at a camp separate from the other ranch help—not that tractor men are particularly dangerous but because Mr. Ford has found it works out better.

For instance, during rush seasons, the tractors may be kept busy day and night so that one crew is asleep while another is at work. Naturally the sleeping ones would be disturbed if they were housed in one of the general camps. Their quarters are comfortable, vividly reminding one of company barracks in the training camps of a few years past.

SPECIAL SERVICE MAN

A service man thoroughly familar with the make of tractor they are using travels in a speed truck from tractor to tractor and makes all necessary field adjustments and minor repairs. He also is responsible for the draining of the tractor crank cases so that he knows when it is done and the condition of the oil. The tractor drivers do not make adjustments on their own initiative but help the service man when he needs assistance.

Formerly the company tried using tractor mechanics as drivers, each man keeping his tractor in condition. That was found to permit of too much individuality, no two tractors being adjusted just alike and often not in accordance with the factory's recommendations.

A motor truck equipped with fuel and oil tanks and pumps delivers these supplies daily directly into the fuel tanks and crank cases of the tractors wherever they may be working. This method is found to save time and supplies over other systems tried previously.

To maintain the tractors and machinery in good condition is one of the problems of the engineer. At the headquarters camp we found repair shops, unusual in many respects. In a long rather narrow building the middle section was devoted to a very complete machine shop—one end an automobile and motor truck repair floor, the other end the tractor repair "bay," with ample room for three machines.

The machine shop, briefly, is equipped with a large lathe with cylinder grinding attachment, drill press, grinders, arborpress, oxy-acetylene welding outfit, engine repair stands, and a good assortment of hand and special tools. An overhead carrier system is used to carry heavy parts between the machine shop and the tractors on the repair floor.

ANNUAL OVERHAULING GIVEN

The general policy is annually to take each tractor completely apart, then build it up, repairing or replacing every part which might give out before the end of another season's hard work. "We are reasonably certain," said the superintendent, "that when our tractors start in the season's work they are as reliable as new machines. Breakdowns in the field cost too much to take any chances."

As for depreciation, the owners write off 50 per cent of the cost price at the end of the first year and 25 per cent each the second and third year. Consequently at the present time most of the tractors are written off, but are still very serviceable machines because of the rebuilding policy.

An accurate record is kept of every tractor, what it does, and how much it costs for upkeep and operation. At the end of his shift the driver enters in a cost account form for his machine the following information: Date; tractor number; driver's name; kind of work done that shift; acreage or mileage covered; helpers; time lost; fuel, oil, grease and parts used; remarks as to special information. These daily reports are checked over by the tractor foreman and tabulated by the bookkeeper. As a result, the exact history and cost of each tractor can be determined on short notice. In other words, they "know where they are."

This fleet of tractors works hard, averaging more than two thousand hours per year each at "hard manual labor." The whole system might be said to be in a small way patterned after the methods used by a railroad in the operation and maintenance of its locomotives. The superintendent thinks it pays to apply engineering to agriculture.

A Tractor Tender

Side view of fuel and oil truck for serving tractor fleet. Right—Rear view of same, showing double tires to increase traction in soft ground. California Packing Corporation ranch, Merced County.

HOME FARM HAPPENINGS

By ONE OF US

SOIL DRINKS WATER—Never before so early in the season has the soil been so dry as it is this year. The land drinks the water from the irrigation pumps, as a thirsty horse drinks on a hot day.

W. S. GUILFORD

Sometimes when the soil is very dry water seems to penetrate slowly—more so than when there is some moisture.

This year—although the soil is very dry—it takes up the water like a sponge. The value of an ample supply of water will be demonstrated this season as it has never been before.

Trees are making splendid growth and there is no reason why this should not continue with plenty of irrigation.

HAY IS HAY THIS YEAR—L. A. Nichols, on the Packer tract, is getting $12 per ton for his alfalfa out of the shock—that is the "going" price now in this neighborhood. There will not be much grain hay unless we get ample late rains to make hay of barley that will not make grain.

But even at that there will be a hay shortage here. Those who have "stayed with" alfalfa will be able to average up for some of the poor years when hay was a drug on the market.

SOME MILLIGAN PHILOSOPHY—A. D. Milligan, who is with Charles Hughes in the California Sales and Pedigree organization at Sacramento, is a good deal of a philosopher.

He has had a very wide and a particularly valuable experience in agricultural, livestock and publicity affairs, and his judgment is worth while.

"Did you ever notice that when there is a boom in the purebred livestock business the boys figure that there will never again be low prices—that the boom will continue indefinitely?

"And when there is a 'slump' and prices go all to pieces, they figure that things will never be any better.

"Each time they are wrong. History always repeats. We are just as sure to have better times in the purebred livestock business as it was sure that the boom prices had to tumble.

"We are due for some mighty good times after awhile, and the 'wise' ones, if there are any such, will be ready for them," says Milligan.

HARD YEAR ON DRY ORCHARDS—This promises to be an exceptionally hard year on dry orchards in this part of the State.

Dry farming is successful in a direct proportion to the amount of moisture available—as a general thing. If there is lots of rain, it is possible, with careful cultivation, to conserve a part of it for the use of trees and crops.

But a year like this, when there is a minimum of rain, trees in dry orchards will have to protect themselves from drouth in every way that nature provides in order to survive.

They will make little, if any, new growth; the crop will be largely shed and leaf growth will be small in order to reduce transpiration to the least possible amount. The value of good irrigated land will be greatly enhanced this year.

THE "PICKER-UP"—Around every farm or ranch where things look neat and clean you will find some one person who is always picking things up. There are hundreds of folks who will throw things around to one "picker-up."

Take pieces of wire, for instance—you can hardly ever find one when you want it and when you do not there is frequently one under foot.

A real "picker-up" never touches a piece of stray wire with his foot that he does not pick it up and hang it on a fence or other place where it can be found when needed.

And pieces of board—these he takes somewhere that they can be found for fuel, if short lengths; and if longer, he puts them where they are handy for a repair job.

A "picker-up" is born. No amount of training will make one of a naturally careless or slovenly person.

GREENS GOING INTO CANS

The Selma cannery is employing 4[illegible]0 men and women to pack spinach, of which 40 [illegible] are grown near Sanger. It was expected to get the [illegible] of the greens into cans about the first of May, at which time the canning of carrots [illegible].

Grower Calls Co-operators to the Colors

[In view of the discontent prevalent among the members of some of the co-operative marketing agencies, this straightforward discussion by a Napa prune and pear grower is both timely and interesting.—Editor.]

WITH those from whom the farmer buys well organized, and those to whom the farmer sells even better organized, how can the farmer keep his head above water if he himself does not organize?

With splendid co-operative organizations backed by all thinking people and endorsed by the press of the United States, why will a farmer let the temptation of a fraction of a cent on one year's crop tempt him to stay out of a co-operative association that is his only salvation for permanent fair prices and success?

Gradually the old-fashioned go-it-alone type of farmer is dying off and, thank heaven, the newcomers and the younger generation are strong for co-operation.

Denmark, and even so-called uncivilized Russia has shown us the success of co-operation by farmers, and by far the great majority of those producing in all lines of American agriculture are now building up great organizations with millions invested in machinery and warehouses which enable them to manufacture and store their crops against adverse years.

Europe is probably on the verge of [illegible] started in business harness again [illegible] when she does (and it is only a question of time) the co-ops. will be "waiting at the church" ready to meet her.

Our officers and managers are surely [illegible] to be congratulated that with our [illegible] European customers out of the [illegible] the [illegible] they have [illegible] on [illegible] if we the [illegible] and [illegible]

[illegible]

in the United States a reward will come to their faithful, co-operative farmer that will bring more reasonable prices to the consumer and better prices to the farmer who surely deserves, as all will admit, a fair return on his investment.

All great advancements come usually not from the majority but from hard working individuals comprising determined minorities and when the minority has a just and righteous cause, gradually they win over the majority, who recognize the merit of the cause and cast their lot by signing up with the co-operative institution, such organizations now comprise the majority of intelligent, earnest, clear-thinking farmers.—HENRY C. MELONE.

Quick Planting Method

SUBSOILING doubled the speed with which a crew of men could dig holes and plant fig trees near Lindsay this spring, and irrigating after subsoiling speeded the work up just about as fast again. The tract was 240 acres of newly leveled red hogwallow soil.

Before subsoiling, seven men could plant 20 rows per day, 29 trees to the row. After subsoiling they planted 40 rows per day, and after irrigation and consequent softening of the ground they could plant 60 rows. A "60" track-layer tractor pulled a subsoiler 24 to 36 inches deep, 180 rows per day. The rows were the regulation 660 feet long.—TULARE FARMER.

COMPARISON OF PRUNING

Measurements were made on a deciduous pruning plot of young trees at Zelzah (Los Angeles County). The long pruned trees are much larger and much more vigorous than the headed back trees. The contrast is striking.

Tap-root Fallacy

MOST trees, including the common fruit varieties, have one or more tap-roots, which serve a useful purpose in anchoring the tree in place and in reaching water supplies stored deep in the soil. It is a widely held popular belief that tap-roots are of some peculiar benefit to trees and that the latter cannot be expected to thrive without the former any more than an animal can survive without any one of several vital organs. I have repeatedly heard fruit growers explain that a tree would overcome gopher injury provided the tap-root was not injured.

It is my opinion, based on practical experience, that this idea of the indispensability of the tap-root is a fallacy. Tap-roots are not objectionable yet they are by no means necessary to the health vigor and productiveness of fruit trees. Tap-roots are always cut when nursery stock is dug. In fact, it is good practice in growing ornamental evergreens to cut the tap-root a year in advance of digging, in order that a larger proportion of fiber roots may be formed in that part of the soil which will be included in the ball.

Anyone who is familiar with the shallow soils of the East will remember having seen blown over giant forest trees which had no tap-roots whatever. In fact, the surface rooting habit of forest trees and complete absence of tap-roots is evident at a glance at the old stump fences once so common in Northern and Western New York.

California and other arid soils are deep and permit of fruit trees feeding much more deeply than is possible on the shallow soils of the East. This is a great advantage, on account of increased water storage and feeding area. Deep holes for tree planting are excellent for many reasons but tap-roots are not better or more to be desired than any other kind.—J. ELIOT COIT.

Have Shapely Feet Unmarred by BUNIONS

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HUMAN INTEREST

We are all interested in what the other fellow is doing—how he solves problems similar to ours, in what manner he has achieved success.

To get first hand information, ORCHARD and FARM sends its representatives afield with camera and note-book.

Not the easiest way to edit a farm journal but indicative of our desire to give PRACTICAL SERVICE.

Big Horse Bean Yield

INTERESTING results were secured from a cover crop variety test in Tulare County. Melitotus indica and purple vetch were checked against horse beans. All varieties were planted broadcast October 15, and were not cultivated in, but were irrigated as soon as planted. The plot was in a fourteen-year-old navel orange grove on Madera sandy loam. Weights, March 13 by the 1-1000-acre method showed as follows:

Purple Vetch—
5.75 tons per acre 15-20 in. high.
M. Indica—
5 25 tons per acre—12-15 in. high.
Horse Beans—
10.75 tons per acre—30-40 in. high.

Another plot in the same grove planted September 20 and cultivated after planting gave results as follows:

M. Indica—
6 25 tons per acre—12-18 in. high.
Horse Beans—
17 0- tons per acre 36-50 in. high.

These yields are all for areas actually seeded, which was 50 per cent of orchard area. Figures furnished by the Agricultural Extension Service.

Using Cold Water Paint on Farm

A Valuable Material in Its Proper Place—Whitewash Compared to Oil Paint—Various Formulas

By E. J. STIRNIMAN
Division of Agricultural Engineering, College of Agriculture, University of California

COLD water paints frequently are used on minor farm buildings and fences to protect them from the elements and to improve their appearance. Such paints serve the purpose very well when properly prepared and applied, but are not as durable as good oil paints.

Cold water paint, properly mixed and applied in dry weather, should last two years. If an oil painted building is to be repainted with a substitute, however, the old oil paint should all be removed. This is accomplished by the use of a paint remover or blow torch, the loosened material being removed with a scraper or steel brush. The expense involved in removing old paint would not be warranted in case of large or valuable buildings, which in all probability would require but a single coat of oil paint to put them in good shape.

A group of farm buildings always looks best when painted alike; that is with the same colors. If a cold water paint is used on a minor structure it should be tinted to match the oil paint with which the more important buildings have been treated.

Whitewash is probably the cheapest of all paints and for certain purposes is very satisfactory. Lime is the basis of whitewash which because of its low price, ease of application and antiseptic properties is used for coating interior walls as well as the outside of stables and other farm buildings.

MAKING ORDINARY WHITEWASH

An ordinary whitewash is made by slaking quick lime in water. The lime should be placed in a tight receptacle such as a barrel, tub or pail, and water poured over it. It should then be covered and allowed to stand for about one hour. If insufficient water is used, the lime will not be completely hydrated and may become scorched. If too much water is added, however, the slaking action will be retarded by lowering the temperature. Scorched lime is generally lumpy so it is important that the right amount of water be added to get the proper consistency.

The U. S. Department of Agriculture gives the following formulas for mixing whitewashes for different uses:

FACTORY WHITEWASH: For interior walls, ceilings, posts, etc.—(1) 62 lbs. (1 bushel) quicklime; slake with 15 gallons water; keep barrel covered until steam ceases to rise; stir occasionally to prevent scorching. (2) 2½ lbs. rye flour; beat in one-half gallon of cold water; add two gallons of boiling water. (3) 2½ lbs. common rock salt; dissolve in two and one-half gallons of hot water.

Mix (2) and (3), then pour into (1) and stir until all is well mixed.

WEATHERPROOF WHITEWASH: (Exterior) For buildings, fences, etc.—(1) 62 lbs. (1 bushel) quicklime, slake with 12 gallons of hot water. (2) two lbs. common table salt; one pound sulphate of zinc; dissolve in two gallons of boiling water. (3) Two gallons skimmed milk.

Pour (2) into (1), then add the milk (3) and mix thoroughly.

"LIGHTHOUSE" WHITEWASH (1) 62 lbs. (1 bushel) quicklime; slake with 12 gallons of hot water. (2) 12 lbs. rock salt; dissolve in six gallons of boiling water. (3) Six pounds Portland cement.

Pour (2) into (1), then add the (3).

CEMENT WHITEWASH: The following recipe for cement whitewash has been successfully used in cold storage warehouses. It adheres strongly to cement, brick or wood and does not rub off:

THIS ONE "STICKS"

Slake one-half bushel of lime with boiling water adding the water slowly and stirring constantly until a thin paste results. The lime will be lumpy if the water is added too freely and the mass not properly stirred. Add one-half peck of salt to the lime paste; stir thoroughly; add water to bring the whitewash to the proper consistency.

Add a good handful of Portland cement and a tablespoon of ultramarine blue to each pail of whitewash. The cement and the blue powder should be added just before the wash is to be used and should be stirred thoroughly, otherwise the whitewash will be streaked. The cement makes the whitewash adhere to any surface and the bluing counteracts the grayish color of the cement, the result being a white coating.

WHITEWASH FOR SPECIAL PURPOSES: Alum added to a lime whitewash increases its adhesive quality. An ounce to the gallon is sufficient. Flour paste answers the same purpose, but a preservative such as zinc sulphate should be added. Molasses renders the lime more soluble and causes it to penetrate more deeply the wood or plaster; a pint of molasses to 5 gallons of whitewash is sufficient.

Silicate of soda solution (about 35 degrees Baume) in the proportion of 1 to 10 of whitewash produces a fire-resistive cement. A pound of cheap bar soap dissolved in a gallon of boiling water and added to about 5 gallons of thick whitewash will impart a gloss like that of oil paint. The introduction of a small quantity of crude carbolic acid adds to the whitewash a certain value as a disinfectant.

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Just to introduce you to the quality of our cigars we are making a special price concession, whereby you get 110 cigars for the coupon below and $4 25. Ten of these are DON FERNANDO cigars (regular 2 for 25c size) and the rest are SOLOS (5c size). In other words, you get $6.25 worth of smokes for only $4.25!

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More California Boys Studying Farming

CONTRARY to the general impression, more California boys and girls than ever before are studying agriculture in the secondary schools. Not only are there more schools, but the number who are taking this subject is increasing, according to R. J. Werner, State Superintendent of Agricultural Instruction.

"It is true," admits Werner, "that some high schools have dropped agriculture from their curriculum and others are losing farm students. This condition, however, is not due, as is commonly supposed, to a waning interest in agriculture, but to inefficient instruction. Where the subject of farming is presented ably and attractively there usually are plenty of students."

At a recent convention of agricultural teachers at Napa, Werner stressed the importance of teaching only those branches of farming which were followed in the community where the students live, because most boys and girls are apt to engage in the same work in which their parents are engaged. No important local agricultural industry should be omitted and none should be added.

Teaching by example rather than by precept was another point emphasized by Werner. "Make much of the practical demonstration," he advised. "This may be done on a field trip, or in the school plot, laboratory or shop, and may be given by the teacher, a farmer or some member of the class who knows how to do particularly well the process being taught."

Another valuable principle brought out was that theory should follow, rather than precede practice. "After we have actually done all or part of a job we are better able to comprehend what the printed page has to say about it," Werner pointed out. "It also should be remembered that skillfully supervised study is far more effective than that in which the pupil is left to his own devices."

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Kill Bugs on Melons by Timely Spraying

POISON sprays on soft green leaves are about as harmful to the plants as to the insects, as a neighbor found out last year when he sprayed his melon vines with lead arsenate and killed the vines.

The pest he wanted to kill was the green beetle that resembles a "lady bird."

At his request I looked up the best control method and found that a mixture of powdered arsenate of lead and powdered Bordeaux had given excellent results, this is dusted on.

Although in cases where the plants will stand it, arsenicals are best applied in a wet spray, in those cases where the leaves are easily injured, the poison is effective in killing the insects and non-injurious to the plant when applied as a dust. Bordeaux is more of a disease control than an insect killer, but when dusted on, it is a fine repellant and helpful when mixed with dry, powdered arsenate of lead.

A nicotine dust is advocated often for the above trouble but my informant, who is in the spray material business, advises the first mentioned combination since he has had excellent results with it himself.—TULARE FARMER.

COMPARISON OF DAIRY BREEDS

According to the 1920 census there are in the United States approximately [illegible] registered [illegible] dairy cattle, [illegible] 31 [illegible] Jerseys, [illegible] Guernseys and [illegible] Ayrshires.

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Pimientos in Spain

VALENCIA canned pimientos are justly famous, but between us and the gate post, California "has 'em beaten" on quality, notwithstanding lusty protests of the Spanish packers to the contrary.

The normal pack for Valencia is about 300,000 cases of 135 pounds each; but the crop for this season has been only 25 per cent of normal because of the extremely hot, dry summer.

The pimientos are grown much as in California, although the vines are often staked and fertilizers are used. The grower usually receives about 1½ to 2 pesetas per arroba in the field for the peppers, this season the price has been about 2 cents (American) per pound, as compared to about ¾ to 1 cent per pound in years of normal crops.

As in California, the pimientos are roasted in revolving, redhot steel drums, are then washed in water, are peeled and cored by hand, packed into small cans for family use or in gallon cans for factory use in their own juice or water, and are sterilized in the sealed can.

The canned product is in demand for stuffed olives in Spain and in New York and for use with cheese, in addition to the usual family and restaurant uses for salad, flavoring, etc. The Spanish pimiento cannery, however, is a small affair compared to those in California.

At present the Spanish growers and packers are very bitter against California for the tariff on pimientos. They vow they will put a prohibitive tariff on our autos and machinery unless we "ease up a bit" on Spanish almonds, olives and pimientos. The writer believes, however, the tariff is counterbalanced by cheaper Spanish land and labor and cheaper transportation costs to the New York market and that Spain's export trade will not be seriously injured by our tariff on agricultural products that directly compete with those of California. In fact, the trade in olives has increased greatly since the tariff has been imposed.

In spite of our California connections, we were treated everywhere with the greatest cordiality and hospitality throughout our visit in Spain. We have only pleasant and favorable recollections of the Spanish people and wish them luck and prosperity under their new government.—W. V. CRIESS, University of California.

Made Water Reach Trees

IN order to make sure newly-planted pecan trees would be given enough water by a tenant during the coming summer, a Porterville rancher this year used a subsoiler to open up the ground.

At first he planned to blast for each hole but later decided to subsoil instead. There was a thick tough plow sole and he subsoiled both ways along the future tree rows, then repeated one way with the subsoiler set as deep as it would go.

This made the rows about 24 inches apart one way and 36 inches the other. He has arranged with a tenant to grow cotton this summer, and feels this subsoiling is a guarantee that when the tenant irrigates the cotton there will be a generous spread underground, so that the trees will get plenty of water and develop a good root system.—TULARE FARMER.

Radio on the Farm—III. Authoritative Advice

By DR. RALPH L. POWER

"The Sky Crier," Los Angeles Examiner Radio Studio

FOR many months the United States Public Health Service has given medical advice by radio to ships at sea without medical attendance for their passengers and crews. Many lives have been saved through such wireless treatment. A somewhat similar service to farmers has been suggested in connection with the foot-and-mouth disease situation.

DR. RALPH L. POWER

There is no dearth of information as to proper procedure in case of animal epidemics, but the problem has been to make this information instantly available. The farmer, in times of emergency, must act promptly, but he often lacks time to consult a distant authority. Radio information in such an emergency may prove invaluable. The limiting factor in such cases is accessibility. The same is true of regions where insect pests are devastating crops.

In the farming field nothing has aroused such universal interest in recent years as the extension of co-operative marketing. Information sent out by radio may further the interests of such organizations and get their information and policies directly before the individual members. The same is true of the agricultural departments of the larger chambers of commerce and similar organizations and the work of the United States Department of Agriculture with its various bureaus.

Radio on the farm has possibilities that are as yet practically untouched. As in other ways, private enterprise often grasps the opportunity for service and profit before governmental agencies, although weather bureau and market reports now are being broadcast by at least 75 stations.

Farmers' organizations are finding that receiving and broadcasting sets open boundless opportunities. In one State, for instance, the State Master of the Grange is investigating the field with the idea of eventually installing a receiving set in more than 200 grange halls.

The director of a group of Middle Western farm papers estimates the territory served by these publications includes more than five thousand grain elevators and the same number of live stock shipping associations. He has suggested that every elevator and association in the region should maintain a receiving set in the business office for business reasons.

Since Gutenberg devised his rude wooden type blocks and made printing possible nearly five centuries ago, there has been no single invention so closely touching human interest and welfare as the miracle of the ages—radio.

"Its messages are flashed over land and sea with the speed of light; the enemy submarine cannot cut the cables of the wireless, the winter storms cannot weigh it down with sleet, or summer suns expand it to slackness; its potentiality includes utility and recreation: it charms the ear with the strains of music, it saves life and property on stormy seas, it annihilates distance and penetrates the isolated home of the farmer as easily as it does the home of the city resident. It is the romance and the inspiration of the world's splendid prime." So says Major James G. Harbord.

Deciduous Smudging

AT Edgewood, Maryland, a field was covered with dense smoke by burning white phosphorus on nights when conditions favored frost. The temperatures were carefully measured under and in the smoke and also in a similar nearby field that was free from smoke. Also, the rate at which heat was radiated from a blackened surface exposed horizontally was measured both under and outside the smoke cloud.

The results show that while the smoke cloud decreased the rate of cooling of the blackened surface about one-half, it had little effect upon the air temperature, probably because of an interchange between the air under the smoke and that outside.

The experiments confirm previous conclusions that the most efficient and economical method of frost protection is to heat the lower layers of the air by burning some form of cheap fuel. The cost of maintaining a dense smoke cover over a field by burning white phosphorus, or by any other known chemical means, is greater than the cost of heating the air in the field by burning crude oil.—B. G. MacINTIRE, U. S. Mo. Weather Review.

Preparing for the 1924 Grain Harvest

MORE than 200 all steel grain harvesters, representing a total value in excess of $[illegible], are shown in the above illustration. This represents part of the 1924 production of the Holt Manufacturing Company, one of California's great farm machinery manufacturers.

Some of these machines already have been shipped to Mexico, where harvesting is set earlier than at any point in the United States. Others will go to the Northwest and into the great middle western grain belt. Some will be used in California.

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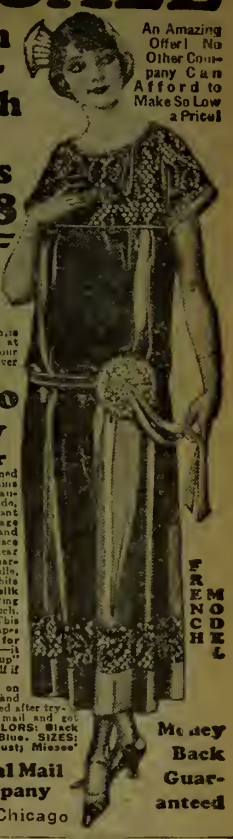

Looks too good to be true—but we mean it! This exquisite creation, sparkling with all the rich beauty and alluring charm of a Parisian gown, is offered you in the sale at only $3.98! Rush your request—you may never see this offer again!

Send No Money With Order

Body of dress fashioned from soft, sheer, genuine Tussah Silk—a most beautiful material. The wide, generous yoke is of elegant silk Spanish lace, the rage of the hour! A wide band of this same beautiful lace is also all around skirt near bottom. At waist is narrow self material girdle, with rich rosette of white lace run through with silk ribbon drop in contrasting color—a clever touch. Newest wing sleeves. This bewitching gown drapes beautifully. Suitable for day or evening wear—it will be your "dress up" frock. A saving of half if ordered now.

No Money Now—pay on arrival only $3.98 and postage. If not delighted after tryon, return by insured mail and get your money back. COLORS: Black or Brown or Navy Blue. SIZES: Women's 32 to 46 bust; Misses' 14 to 22 years.

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NOTICE! *Farmers—Dairymen—Vegetable and Rhubarb Growers*

Get into that which is paying better today than anything you ever tried.

Grow Panama Rhubarb

The Jap is now out of the Rhubarb business—real estate subdivisions have used up over half the fields. local demand, due to increased population, has doubled. We cannot supply a quarter of the demand for Panama at good prices—it never paid better. We have sold for home sites over 30 acres of our Rhubarb field and must move our plants. We begin planting next week on our new 40 acre field. We will have surplus plants for another 20 acres, and we want to see you plant them. Nothing ever has or will pay you as well as Panama. It costs less than half as much to gather and prepare for market. This item alone means an additional profit of $100 per acre. The yield of Panama is twice as much as other Rhubarb—which means an additional profit of $500 per acre over common Rhubarb.

As secretary of the California Rhubarb Growers' Association for 3 years I had occasion to talk with every grower in Southern California. Every one of them said they would plant Panama as soon as plants were available.

Now is your chance. We have a surplus to sell at prices you will not get again for some years, as we will not dig up our new field—cannot afford to unless we get a high price for plants in future.

May and June Are the Best Months to Plant Rhubarb

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When answering advertisements please mention this paper.

Shetland Pony Regaining Popularity

THAT the American Shetland Pony Club has registered nearly 20,000 of the little animals and that the organization has enrolled some 500 members, is the interesting information received from Miss Julia M. Wade, secretary-treasurer.

As the Shetland is hardy and long lived, Miss Wade estimates that perhaps 14,000 purebreds are alive in this country, although perhaps not all of them are eligible to registry.

During and immediately after the war Shetland Pony Club activities became almost dormant, but recently a refinancing plan was adopted and now business is reported to be "picking up" again. Many breeders, however, sold out and have not re-entered the "game."

"A number of breeders who have the larger herds have resorted to various means for making money out of their Shetlands," says Miss Wade. "One man living near Philadelphia supplies ponies for piers at three ocean summer resorts. These ponies are rented by the children of the wealthy classes. Some one is in charge to teach the children to ride.

"Another man living in Ohio wrote me that he had furnished all of the equipment for the 'Jackie Coogan in Circus Days' picture."

Shetland ponies used to bring (so the owners claim) the same prices, approximately, that horses brought. The Shetland that sold for the highest price on record is a little stallion, still living, known as "King Larigo." He is one of the small Shetlands, very dark brown or black in color, an exceedingly handsome show pony. He proved to be an excellent stud pony and his colts are generally true to type.

This pony was sold to James Cox Brady of New Jersey about five or six years ago for $10,000. Brady purchased a number of mares at the same time but following Mrs. Brady's death a year or two later, the original owner of the ponies, George A. Heyl of Washington, Illinois, repurchased almost the entire herd, including the colts—everything which was not already disposed of to some other buyer.

Dwyer and Guilford of Butte City (Glenn County) are perhaps the best known Shetland breeders on the Pacific Coast and still regard the pony "branch" as an important side-line of their general ranch and breeding establishment.

W. S. Guilford of this firm is now the head of the National Record Association.

Evergreen Planting Hint

IN transplanting trees, especially evergreens, I have found it best to set them in the same position occupied in forest or nursery. A mark on the trunk when the tree is dug will indicate which was the south side, making it possible to replant in same position.

It also is an advantage to lean the tree in the direction of the hottest sun, to enable the top to shade the trunk and thus prevent sunscald and [illegible] up. Whitewashing also helps [illegible] this purpose and has a fertilizing value. —W. H. HENLEY, San Diego County.

California Bulletins Available

IN response to numerous requests from readers, ORCHARD and FARM publishes below numbers and descriptions of bulletins and circulars of the University of California which now are available for free distribution. This includes older publications, those which have been revised, and newer circulars.

Any citizen of California may secure these publications, although in the interest of efficiency it is suggested our readers request only those which they believe will be of immediate use and practical value. Order by number and name. Address Director Agricultural Experiment Station, Berkeley, Cal.

CALIFORNIA BULLETINS

No.

253. Irrigation and Soil Conditions in the Sierra Nevada Foothills, California.
261. Melaxuma of the Walnut, "Juglans regia."
262. Citrus Diseases of Florida and Cuba Compared with those of California.
263. Size Grades for Ripe Olives.
268. Growing and Grafting Olive Seedlings.
273. Preliminary Report on Kearney Vineyard Experimental Drain.
275. The Cultivation of Belladonna in California.
276. The Pomegranate.
277. Sudan Grass.
278. Grain Sorghums.
279. Irrigation of Rice in California.
280. Irrigation of Alfalfa in the Sacramento Valley.
283. The Olive Insects of California.
285. The Milk Goat in California.
286. Commercial Fertilizers.
287. Vinegar from Waste Fruits.
294. Bean Culture in California.
298. Seedless Raisin Grapes.
304. A Study of the Effects of Freezes on Citrus in California.
308. I. Fumigation with Liquid Hydrocyanic Acid. II. Physical and Chemical Properties of Liquid Hydrocyanic Acid.
312. Mariout Barley.
317. Selections of Stocks in Citrus Propagation.
319. Caprifigs and Caprification.
321. Commercial Production of Grape Syrup.
324. Storage of Perishable Fruit at Freezing Temperatures.
325. Rice Irrigation Measurements and Experiments in Sacramento Valley 1914-1919.
328. Prune Growing in California.
331. Phylloxera Resistant Stocks.
334. Preliminary Volume Tables for Second Growth Redwood.
335. Cocoanut Meal as a Feed for Dairy Cows and Other Livestock.
336. The Preparation of Nicotine Dust as an Insecticide.
339. The Relative Cost of Making Logs from Small and Large Timber.
341. Studies on Irrigation of Citrus Groves.
343. Cheese Pests and Their Control.
344. Cold Storage as an Aid to the Marketing of Plums.
347. The Control of Red Spiders in Deciduous Orchards.
348. Pruning Young Olive Trees.
349. A Study of Sidedraft and Tractor Hitches.
350. Agriculture in Cut-over Redwood Lands.
351. California State Dairy Cow Competition.
352. Further Experiments in Plum Pollination.
353. Bovine Infectious Abortion.
354. Results of Rice Experiments in 1922.
355. The Peach Twig Borer.
357. A Self Mixing Dusting Machine for Applying Dry Insecticides and Fungicides.
358. Black Measles, Water Berries and Related Vine Troubles.
359. Fruit Beverage Investigations.
360. Gum Diseases of Citrus Trees in California.
361. Preliminary Yield Tables for Second Growth Redwood.
362. Dust and the Tractor Engine.
363. The Pruning of Citrus Trees in California.
364. Fungicidal Dusts for the Control of Bunt.
365. Avocado Culture in California.
366. Turkish Tobacco Culture, Curing and Marketing.
367. Methods of Harvesting and Irrigation in Relation to Mouldy Walnuts.
368. Bacterial Decomposition of Olives during Pickling.
369. Comparison of Woods for Butter Boxes.
370. Browning of Yellow Newtown Apples.
371. The Relative Cost of Yarding Small and Large Timber.
373. Pear Pollination.

CIRCULARS AVAILABLE

No.

70. Observations on the Status of Corn Growing in California.
87. Alfalfa.
111. The Use of Lime and Gypsum on California Soils.
113. Correspondence Courses in Agriculture.
117. The Selection and Cost of a Small Pumping Plant.
127. House Fumigation.
129. The Control of Citrus Insects.
136. Melilotus indica as a Green-Manure Crop for California.
144. Oidium or Powdery Mildew of the Vine.
1[illegible]1. Feeding and Management of Hogs.
15[illegible]. Some Observations on the Bulk Handling of Grain in California.
1[illegible]3. Announcement of the California State Dairy Cow Competition 1916-18.
154. Irrigation Practice in Growing Small Fruit in California.
1[illegible]5. Bovine Tuberculosis.
157. Control of the Pear Scab.
158. Home and Farm Canning.
159. Agriculture in the Imperial Valley.
160. Lettuce Growing in California.
161. Potatoes in California.
164. Small Fruit Culture in California.
165. Fundamentals of Sugar Beet Culture under California Conditions.
166. The County Farm Bureau.
167. Feeding Stuffs of Minor Importance.
170. Fertilizing California Soils for the 1918 Crop.
172. Wheat Culture.
173. The Construction of the Wood-Hoop Silo.
174. Farm Drainage Methods.
175. Progress Report on the Marketing and Distribution of Milk.
178. The Packing of Apples in California.
179. Factors of Importance in Producing Milk of Low Bacterial Count.
18[illegible]. Extending the Area of Irrigated Wheat in California for 191[illegible].
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189. [illegible] Fuels.
1[illegible] [illegible] Clubs in California.
19[illegible]. A Study of Farm Labor in Ca[illegible]
198. Syrup from Sweet Sorghum.
199. Onion Growing in California.
201. Helpful Hints to Hog Raisers.
202. County Organizations for Rural [illegible] Control.
203. Peat as a Manure Substitute.
205. Blackleg.
206. Jack Cheese.
208. Summary of the Annual Reports of [illegible] Farm Advisors of California.
209. The Function of the Farm Bur[illegible]
210. Suggestions to the Settler in Ca[illegible]
212. Salvaging Rain-Damaged Prunes.
214. Seed Treatment for the Pre[illegible] Cereal Smut.
215. Feeding Dairy Cows in Ca[illegible]
217. Methods for Marketing Veg[illegible] California.
218. Advance Registry Testing [illegible] Cows.
219. The Present Status of Al[illegible]
2[illegible]. Unfermented Fruit Ju[illegible]
228. Vineyard Irrigation in Arid [illegible]
230. Testing Milk, Cream and [illegible] for Butterfat.
231. The Home Vineyard.
232. Harvesting and Handling [illegible] Cherries for Eastern Shipment.
233. Artificial Incubation.
234. Winter Injury to Young Wal[illegible] during 1921-22.
235. Soil Analysis and Soil and Plant [illegible] relations.
236. The Common Hawk and Ow[illegible] fornia from the St[illegible] Ran[illegible]ber.
237. Directions for the Ta[illegible] of Furs.
2[illegible]. The Apricot in California.
239. Harvesting and Han[illegible] Apr[illegible] Plums for Eastern [illegible]
240. Harvesting and Handling [illegible] Eastern Shipment.
241. Harvesting and Handling [illegible] Eastern Shipment.
24[illegible]. Poultry Feeding.
243. Marmalade and Jelly [illegible] Citrus Fruits.
244. Central Wire Bracing f[illegible]
24[illegible]. Vine Pruning Systems.
247. Colonization and Rural [illegible]
248. Some Common Errors in V[illegible] and Their Remedies.
249. Replacing Missing Vines.
2[illegible]. Measurement of Irr[illegible] the Farm.
2[illegible]. Recommendations [illegible] Common [illegible] Poultry [illegible] Ca[illegible]
2[illegible]. Supports for Vines.
[illegible] Vineyard Plans.
[illegible]4. The Use of Artificial [illegible] to Winter [illegible]
2[illegible]. Leguminous Plants [illegible]
[illegible] The Control [illegible]
[illegible] The Sma[illegible]
[illegible] Thinning [illegible]
[illegible] Pear B[illegible]
[illegible] A Select[illegible] List of B[illegible] ing [illegible] Irrigation [illegible]
[illegible] Saving Grain Sacks.
[illegible] Cabbage Growing [illegible]
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264. Preliminary Essentials [illegible] Control.
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26[illegible] Analyzing the Citrus Orchard [illegible] Means of S[illegible]
26[illegible] The Tendency of [illegible] Front [illegible] Causes and [illegible]
268. Inexpensive Labor-saving [illegible] plans.
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27[illegible] Brooding Chicks Artificially.

Fenugreek Good Cover C[illegible]

FENUGREEK, a clover wh[illegible] wild on all continents [illegible] and South America, i[illegible] being [illegible] successfully by H. Crew [illegible] County). This plant is [illegible] green manuring on adobe a[illegible] soils.

It attains a height of 40 [illegible] very drouth resistant a[illegible] insect pests and [illegible] makes a strong, bush[illegible] ous plant, which wh[illegible] has a stimulating effe[illegible] tries the seed [illegible] human food, according to [illegible] son, Fresno agronomist [illegible]

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...nite may be effectively used for ...ing ground under trees, bushes ...shrubs to stimulate their growth. ...his purpose the holes—one or ...according to the size of the bush ...e are punched or bored two or ...feet below root depth.

...n hole is loaded with a quarter or ...cartridge of 20 per cent ammonia ...e primed with a blasting cap ...fuse and the holes tamped and ...in the usual manner.

...e explosion has very little effect ...e surface of the ground, making ...y small mounds at the mouth of ...hole, but underground it cracks ...pulverizes the soil around the ...es for a radius of ten or twelve ... In this condition the soil absorbs ...uch larger percentage of rainfall ...stores it for use in dry weather. ...oreover, fine roots can push their ...more easily through a porous soil ...thus find a wider feeding area. ...results of subsoiling under trees ...sometimes very remarkable, as ...n an old apple tree which has ceased ...ing had a cartridge of dynamite ...d under it and the next summer ...e twenty-four bushels of excellent ...ples.

DRAINING WET SPOTS

...nother purpose for which dynamite ...be useful, is for draining a low ...in a tillable field where water ...ds after every heavy rain and ...s out whatever is planted there. ...ind out whether this is practical, ...a hole with a soil auger and ...ine the soil at different depths. If ...find that the top soil is underlaid ...hardpan or cemented gravel and ...in turn by sand or loose gravel, ...ing small charges of dynamite in ...impervious stratum will break it up ...open passageways through which ...r will be able to run down from ...surface into the porous sand or ...el.

...t down holes all over the depres... about fifteen feet apart and deep ...ugh to reach within about eight ...es of the underlying porous mate... Load each of these holes with 20 ...cent ammonia dynamite primed ...blasting cap and fuse. The charge ...uld be half a cartridge for a hard... two or three feet thick and a whole ...tridge for a thicker stratum of hard... The fuse should extend at least ...inches out of the hole.

...the holes are dry and all subsoil ...ing if possible should be done when ...ground is dry tamp them firmly ...he mouth with loose earth.

...ht the fuses in succession as ...lly as possible. The shots will ...e very little disturbance—only a ...thud and a small mound of earth ...r each hole, but the next rain will ...le into the ground instead of stand... on the surface.

BLAST DRAIN CRATER

...the soil underlying a wet spot is ...ay the problem of securing drain... is more difficult. If clay is merely ...tered by subsoil blasting it is likely ...run together when wet and pack ...t again. In this case, therefore, ...be necessary to blast a sink hole ...h the clay down to the sand ...and construct a permanent drain. ...t a bore hole down under the ...t point of the wet spot to within ...t of the sand or gravel and fire ...r two cartridges of 40 per cent ...nia dynamite in the bottom of the ...to chamber it out. Then load a ...charge of the same dynamite in ...vity—from five to twenty-five ...according to the depth of the ...cartridges reaching up the ...e to within two feet of the ... Prime the top cartridge and ...and fire as usual.

...re the rough crater made by ...reaches down into the sand ...fill it up with brush, loose ...bish to keep it open with ...for cultivation. If ...sand or gravel lies more ...feet below the surface ver... ...l and the ... to ditch it.

...n't Keep Does Together

[illegible]

Succeeding With Pistachio Nuts

Sacramento Orchardist Tells of Sixteen Years' Experience in California With Profitable New Crop

By CLAUD D. TRIBBLE

IN THE spring of 1908 I planted 590 pistachio seedlings in a young vineyard, placing them 32 feet apart. They were Terebinthus, Chinensis, Veristina, Mutica, Lenticus and Atlantica. The Terebinthus was highly recommended as a root stock and was given the best soil. The trees proved to be weak in growth, however, forming only a bush, and eventually all of them died but three, which still are in the orchard: two seedlings and one grafted tree.

The Chinensis grew very rapidly and seemed to be ideal as a root-stock, but when it was budded or grafted the top outgrew the stock and the trees died. The Mutica and Veristina grew slowly but made bearing trees, although they are small and of no value.

The Lenticus is the next best stock for the commercial Pistachio, but not as rapid a grower nor as well adapted for this purpose as the Atlantica. The Lenticus is said to be the source of a delicious salad oil, the nuts yielding 18 per cent of this product, and as it is a most prolific bearer it may prove of value for this purpose.

ATLANTICA BEST SORT

The Atlantica has proved perfectly adapted to our soil conditions and makes the largest trees. It is more easily budded and grafted than the other varieties mentioned and makes a perfect union. This stock is superior to any other I have seen or used.

The soil where this orchard was planted is underlaid with hard-pan, ranging from 14 to 24 inches in depth and overlaid with clay. Regular irrigation is given the trees.

In 1914 I received my first Pistachio grafting wood. The varieties were Bronte, Red Alleppo, Carpellate and Trabonella. The Carpellates proved to be all males and were planted in a block. Most of the Red Alleppo cions proved to be Atlantica, probably because the cions were cut below grafts.

Owing to the extremely hard wood of the Pistachio and its being cross-grained and exuding much resin it is rather hard to bud or graft. The cleft for grafting must be made with a saw and cut out to fit the cion, as the stock cannot be split. Shield budding gives best results.

POLLINATION IS IMPORTANT

The Pistachio is dioecious, the nuts being produced on one tree and the male flowers on another. Male trees should be planted in every fifth or sixth place each way. The trees should be planted 30 feet apart each way on rich soil and on poorer soil 24 by 24 feet.

Male trees should be assisted by cutting male flowers and placing them in nut-bearing trees. I do this by cutting wire in 6-inch lengths, twisting one end around the stem of the flowers and making a hook on the other end to hook on to limbs. I carry the male flowers in baskets and fasten four or more in each female tree.

Nuts not fertilized grow to maturity the same as fertile nuts, but are easily distinguished by the color. The husks will not come off the infertile nuts, while the fertile nuts have a thick, white husk easily rubbed off. Infertile nuts float on water, but good nuts sink.

Seedling trees of the Atlantica, Mutica and Lenticus pollinate Pistachio Vera, the commercial kind. The Atlantica, however, usually blooms too early for the Vera.

Pistachio nuts are gathered by knocking onto sheets, same as almonds. Then they are husked by rubbing off the soft hulls.

My best variety is the Red Alleppo, which has the largest, best flavored kernel, of a deep green color. This variety gives a large per cent of cracked or pipped nuts, which is a very desirable feature, as the nuts then are easily opened with the fingers.

The Bronte seems to make the largest tree and bears more than the Alleppo, but very few of the nuts are pipped and the kernel does not have the deep green color of the latter, nor the same delicate flavor. The Trabonella is very similar to the Bronte, although the trees are not so large and the outer husk is very white.

I have a California seedling that gives an average of 75 per cent pipped nuts, of delicious flavor and good color.

When the nuts are husked they are placed on trays to dry and stirred twice daily till dry, to prevent discoloring the shell. When dry they are sacked and ready for market.

In 1917 I had my first yield. The second year some of the trees produced 25 pounds of dried nuts. For three years I was handicapped by not understanding pollination. Since then the trees have been in charge of tenants. In 1922 some of the trees produced 76 pounds of dried nuts. Last season the crop was light, as the new tenants did not understand pollination.

HIGH PRICE RECEIVED

My present tenants have made a five-year contract at $1 per pound for dried nuts. They also sell the husks.

The quality of California Pistachio nuts is so much better than foreign nuts that importers are trying to buy our crop. A number of Eastern dealers have asked for prices on this year's nuts. Numerous persons who have sampled these nuts pronounce them far superior to the imported product. The fresh nut is preferred to the salted product shipped in from Mediterranean countries.

The outlook for Pistachios is very promising. They can profitably be planted where other fruit and nut trees do not thrive. The main requirements are good cultivation and adequate irrigation. Pistachios will take kindly to the foothills, the interior valleys, and to the coast counties as well. As to their hardiness I am not prepared to say, but have had no trouble with frost here in the Sacramento Valley.

Growing, Grafting Seedlings in Orchard

A GOOD many people, especially those with limited orchard experience, hold the belief that superior orchard trees are produced by planting seeds or seedling stocks in place in the orchard and "budding in place" after the stock has grown to some size. In this way transplanting of the budded tree is avoided. This belief is based on the assumption that transplanting trees is an injurious practice and objectionable, no matter how well performed. It is the writer's experience that this is a mistaken idea, particularly with reference to avocado trees, and is destined to lead to disappointment and loss. Instead of being objectionable, there are many advantages in growing trees in a nursery, where they may be nursed.

DR. J. ELIOT COIT

Seedling trees are delicate and require constant attention. If planted in orchard form they are exposed to all the rigor of open field conditions and must necessarily suffer a high mortality. A certain proportion of avocado seeds are hybrids between the Mexican and Guatemalan strains. As such they are quite variable in vigor and many prove to be unsuitable for budding. Many seedlings are difficult to bud and some absolutely refuse to accept a bud. Nursery propagation provides at least three opportunities for ... of the best, which is bound to result in a more uniform and satisfactory orchard than by any other method.

When planting the seed bed, only the best seeds are planted, the poor ones being discarded. When transplanting to nursery row, only those which show vigorous growth are taken. Some of these fail and have to be replaced. Of the buds which "take," not all develop into satisfactory trees. Not more than 30 or 40 good trees can be expected from an original planting of 100 seeds.

If a beginner in the avocado game thinks he cannot afford to buy good, well-grown budded trees he should plant seeds in a small nursery, where all poor ones may be culled out and only the best selected for field planting. Experiments with both citrus and deciduous nursery trees of different sizes have shown that the most thrifty nursery trees always develop into the best orchard trees, while the "seconds" remain poor and scrawny. This is due to the influence of stock or cion. Even if several seeds are planted in each place to allow for a certain amount of selection, the result is not satisfactory. "Budding in place" is too difficult and uncertain for the average grower and results in serious lack of uniformity in the orchard.

Growers who have had most experience in the business insist on large, thrifty well-grown budded trees. The beginner can ill afford to pursue any other course. The place to raise a good child is in the home, not on the streets, and the place to raise a good tree is in a nursery, not in the open field. The tendency of many beginners, in recent subdivisions, to plant avocado seedlings in orchard form will result in disappointment and be a serious hindrance to the proper development of the industry.—J. ELIOT COIT

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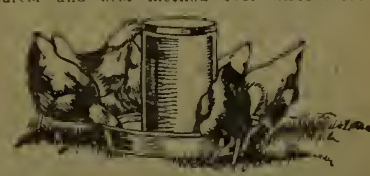

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Agricultural Extension Service Justly Famous

California's Wonderful County Agent System Leads Nation in Organization and Accomplishment

[Editor's Note. This article is more than a brief biography of Professor Crocheron, for it outlines the development of agricultural extension work in California. Many readers, no doubt, will be amazed to learn of the thoroughness and forethought with which the county agricultural agent system has been carried out in this State—undoubtedly exceeding in scope and efficiency similar developments in any other part of the country.]

"IT takes a long, tall, black-haired Chief
To make us Farm Advisers step around."

—thus sang a care-free group of County Agents at the supper marking the close of the last annual Agricultural Extension Service conference, to indicate their feeling as to the effectiveness with which B. H. Crocheron directs the activities of this organization in California, and their loyalty to him as a real outstanding leader.

PROF. CROCHERON

When in 1913 the passage of the Smith-Lever Act was assured, which would initiate a new field of activity for the U. S. Dept. of Agriculture and the various colleges of agriculture, Dean Thomas F. Hunt of the College of Agriculture of this State began looking for some one to develop the work in California. This was to be a new venture; there were few precedents to go by; organization, technique, methods, administration were as yet unformulated.

In addition to agricultural training, the work called for initiative, creative imagination, originality, energy and endless enthusiasm, together with a broad understanding of human nature. All these were found bundled together in the tall, dark-haired chap referred to above, who was at that time attracting the attention of the educational world, foreign and domestic, by showing what a really rural high school at the country cross roads could do in terms of community betterment.

Fortunately for a young State with its agricultural future still largely ahead of it, the Director of its Agricultural Extension Service was guilty of that most fortunate crime of being "young"—and took up the work of creating the present extension service organization when barely thirty. A graduate of Cornell in farm management when Liberty Hyde Bailey was making that institution the center of things rural and agricultural, it was impossible for him to escape the infectious enthusiasm that permeated student body and faculty, for his institution was at that time the foremost training ground for rural leadership. Interest in rural schools had been aroused during this period; the place of agriculture in the high schools was still to be worked out.

HIGH SCHOOL ACHIEVEMENTS

At the end of a five-year course, Crocheron accepted the principalship of a new agricultural high school in Maryland, as an experiment to see what might be the function of such an institution when fully developed. His achievements there are a matter of rural educational history. Delegations from other States and from abroad came to study its methods and achievements. It had set new standards for rural high schools.

Coming fresh from this venture the work of organizing Extension Service plans under the Smith-Lever Act in California was a new experience and was attacked in characteristic manner. A thorough study of the agricultural problems of the State was made first hand as a basis for developing an organization to meet these needs. For months, from the warm stretches of Imperial to the lava studded plains of Modoc County and from the citrus belt of the south to the dairy farms of Del Norte, Crocheron's chugging flivver poked its inquisitive radiator.

Over the kitchen table he learned from the farmer's wife through things said and unsaid, and thus the home side and its problems became better understood. Over companionable pipes while sitting together on the old sawhorse, the problems of growing and selling, as he saw them, were drawn from the farmers. Even the kids picked up for a lift on the way to school added the youngster's viewpoint on what interested him at home or at the "durned ol' school."

With first hand study of the State to give the needed background, a plan was drawn up to make available through farm adviser, club leader, and later through home demonstration agent, the new service of State and Nation in the interest of better and more prosperous rural life. In this plan four principles were laid down as fundamental before farm adviser work was begun in any county—and after ten years Crocheron's far sighted judgment in making such provisions has been more than vindicated. Upon them has been built an Extension Service which in organization, personnel and efficiency is probably the most outstanding in the United States today.

FUNDAMENTAL PRINCIPLES

These fundamental principles will bear repeating here, for they briefly and concisely indicate the basis upon which Extension Agents began to operate in 1914—a basis none too clearly understood by many even today:

(1) The University offers to appoint and pay the farm adviser only after the Board of Supervisors has appropriated $2000 for the annual expenses of the adviser and there has been organized in the county a farm bureau of at least one-fifth of the farmers of the county, with an annual membership fee of $1.

(2) The farm adviser is required to serve any farmer in the county whether a member of the farm bureau or not, but he is instructed not to visit any farm unless he is invited to do so.

(3) The purpose of the farm bureau is, first, to demonstrate whether the farm adviser is really wanted by the farmers themselves, and, second, to create an efficient working agency.

(4) The farm adviser does not seek to control or direct the action of any person. He gives to each person the best advice of which he is capable through the aid of the staff of the Agricultural Experiment Station, but the initiative still rests with the person seeking advice. If, for the successful prosecution of the methods advised, it is necessary to have concerted action or if it is necessary to pass and execute laws, the people must take the next necessary steps, or the legislative and executive branches of Government must create and execute such measures as the investigations of the station show to be warranted by the facts.

The benefits of Prof. Crocheron's sound judgment in organization and leadership have extended beyond the Agricultural Extension Service into the County Farm Bureaus. The latter organizations were first started as educational agencies through which the Extension Service largely functioned. It was he who drew up their plans and constitution and helped guide them during the early days when foundations were laid, through which the present powerful Statewide Farm Bureau Federation has developed.

That the State has adjudged the work to be of real value is evidenced by the support that has been given it. The total force—administrative, Farm Advisers, Home Demonstration Agents, Club Leaders, assistants and specialists—number 126, working in 43 organized counties and several unorganized counties in addition.

Following closely upon the heels of the newly instituted Farm Adviser work, came agricultural club work with boys and girls. The work started in high schools at a time when there were few agricultural courses organized in such institutions. These clubs not only served to stimulate interest in agriculture in the youngsters through competitive group action in agricultural practice, but also were directly responsible for the aroused interest in high school agriculture and helped pave the way for successful vocational work which has since become a part of high school courses generally.

TRIPS FOR BOYS

For the three years prior to the entrance of this country into the war the high school "ag club" winners were sent by their communities on a month's tour of the United States under Prof. Crocheron's charge to study the principal types of American farming. A full carload experienced this opportunity each year—an investment in training for rural leadership to mature at a later date.

The third branch of Extension Service work which touches the needs of farm women through home demonstration agents was the last to be initiated and has been marked by the same careful and thorough study of these needs followed by an active, well organized plan of endeavor that has created a demand for this service greatly in excess of the means to supply it.

Through the different lines of activity of the Agricultural Extension Service, the University through the College of Agriculture has been brought into intimate contact with the daily life of thousands of farm homes in California and its influence is steadily widening and deepening.

THE YOUTHFUL VIEWPOINT

Young himself, Crocheron has maintained a lively interest in young people, particularly the undergraduate in the College of Agriculture. Until the demands made by the rapid development of the expanding service made it impossible, he led at the request of interested students, an informal seminar on country life problems in his home. These "Thursday Nights," as they were known, became never-to-be-forgotten experiences of those favored older students who draped themselves comfortably o[n] davenport and rocker under the la[mp] light and discussed that many [si]de[d] complex institution—American, and [par]ticularly Californian, country life.

With all the great increase in ind[us]trial and commerce, and all of the [ac]tivities that make for extensive ur[ban] development, California is and will [al]ways be essentially an agricultur[al] State. Changing conditions bring ne[w] problems. The continued agricultu[ral] prosperity, and therefore the prosp[erity] of the entire State, depends upon me[et]ing these problems of today and of [the] future fully, fearlessly and in a man[ner] fundamentally sound. The movem[ent] begun but a decade ago through [the] awakened responsibility on the par[t of] State and Nation to bring to the [farm] folk through farm adviser, home d[em]onstration agent and boys' and [girls'] club leader the combined assistan[ce of] the State College of Agricultur[e and] the U. S. Department of Agricu[lture in] direct, practical ways is destin[ed to] have a vital effect on the betterm[ent of] rural life.

Fortunate it is for California that [from] the start the State has had as or[gan]izer and director the above mentio[ned] "long, tall, black-haired Chief," [who] having vision of what the future of [Cali]fornia agriculture might be, had [also] the energy and enthusiasm to lay [a broad] and strong foundation upon which a future could be realized and [at]tained.

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Egg Producer Tries Many Improved Methods

He Likes to Experiment

APPROACHING the poultry "game" with an open mind, this Los Angeles County producer has profited by his discoveries as well as his mistakes. Encouraging results have led to his determination to increase his investment and, if possible, his net profit per hen in order to justify operating upon very high-priced land.

—*The Editor.*

CARL G. JOHNSON, Arcadia (Los Angeles County) egg producer, was informed by the poultry expert who inspected his plant that he should insert windows in the rear wall of his building. These openings, it was explained, would admit [illegible] ht necessary to enable hens to [illegible] the nests and would prevent the [illegible] ng of eggs on the floor.

"All right," agreed Johnson. "I'll try [illegible] ing once."

[illegible] suggested improvement was [illegible] but did not lessen the number of [illegible] laid on the floor. The openings, [illegible] er, provided needed ventilation [illegible] hot summer weather and, there[illegible] were retained.

[illegible] is incident illustrates Johnson's [illegible] ensity to engage in experimental [illegible] k. He learns all he can about the [illegible] business from study and observa[illegible] then tests every method, improve[illegible] t and appliance that looks [illegible] ing.

[illegible] e has tried, for example, every [illegible] h of nest from twelve inches to [illegible] en feet, finding that about two feet [illegible] the best length. Feeding, breeding, [illegible] ding and housing—all have received [illegible] stive experimentation. Being of [illegible] chanical turn of mind, he has made [illegible] y ingenious improvements in his [illegible] try house. He realizes his build[illegible] still are imperfect, but every year [illegible] y are getting better and better, he [illegible] s.

POULTRYMEN MUST PROGRESS

"The poultryman who doesn't improve [illegible] methods is bound to lose out in the [illegible] race," declares Johnson. "There is [illegible] h thing as standing still in the [illegible]"

[illegible] hen Johnson was in the chicken [illegible] ess at Hayward (Alameda County), [illegible] hens laid an average of 160 eggs in [illegible]

[illegible] next year he began culling, in[illegible] g production to 171, which was [illegible] one egg less than the best record [illegible] y California commercial poultry[illegible] that year, according to official [illegible] rds. The next year Johnson's hens [illegible] ged 175 eggs, and the following [illegible] 180.

[illegible] s conspicuous success and excellent [illegible] mental work resulted in Johnson [illegible] pointed chairman of the poul[illegible] rtment of the Alameda County [illegible] reau, of which he also served [illegible] the directors.

[illegible] hundred laying hens, as well [illegible] llets and cockerels, were kept [illegible] re of ground. Asked if he [illegible] this the largest number of [illegible] profitably could be kept on [illegible] nt of ground, Johnson replied:

[illegible] ACR[illegible] POSSIBILITIES

"[illegible] y not! On good land, with [illegible] er and in a climate where [illegible] every month of [illegible] to keep three or [illegible]

[illegible] tension Service [illegible] m number, [illegible] more than that [illegible] ere I was han[illegible] water and where [illegible] not the best [illegible] tion.

[illegible]," we had [illegible] irriga[illegible] wasn't [illegible] Water [illegible] there [illegible] ly $3 a [illegible]"

[illegible]

forage which can be grown on a small plot of ground, Johnson claims.

At his former location he put all the manure from 1500 hens on one acre of ground, which gradually became exceedingly rich, producing an enormous tonnage of feed. Kale, Sudan grass, barley and alfalfa are the principal crops grown. The kale patch is renewed once a year. Chard doesn't last long enough to pay for raising, and beets don't yield sufficiently, he says. It pays to grow a few of the latter, however. A thousand hens will eat, on an average, 100 pounds of green feed daily, it has been found.

Keeping hens under cover all the time is believed to be entirely feasible, although small yards are considered an advantage, their use a few hours a day during favorable weather resulting in a saving of litter and enabling the hens to dust themselves and soak up sunshine.

Johnson doesn't take much stock in the theory that chicken yards need to be spaded up and planted in order to keep them sanitary.

"A neighbor of mine almost worked his head off trying to follow that plan," he related. "The ground finally became so thoroughly saturated with filth that his hens contracted disease. In districts where the ground packs easily, the best method of keeping yards clean is to sweep them off in the dry season and let the rain wash them during the winter, when fowls are kept indoors."

As a profitable place to produce poultry, all the advantages are not on the side of Arcadia, in comparison with his former place, Johnson has found.

"Chickens are not as healthy here as in the north," he states. "It may be that this is partly due to the climate being less equable here. In the vicinity of San Francisco Bay the weather is cooler than here in the San Gabriel Valley, but there is less difference between day and night temperatures. Sudden changes are hard on fowls."

Here is Johnson's method of treating roup and chicken pox, the two commonest ailments to which fowl flesh is heir:

TREATING ROUP AND POX

When the sickness is not serious, give each 100 birds one pound of Epsom salts dissolved in water and mixed with the dry mash, or add to the salts an [illegible] l amount of sulphur, before mixing [illegible] the feed. Semi-solid buttermilk [illegible] be added to the chemicals. [illegible] buttermilk [illegible] not been [illegible] y [illegible] lity [illegible] should be [illegible] ted from the rest of the flock, to prevent contagion, and each one given a tablespoon of salts, dissolved in water. The medicine should be administered through a tube, to prevent choking.

Johnson's poultry house is sixteen feet wide, with partitions every twenty feet. The main part extends north and south, but an extension is being built east and west, to protect the birds from the afternoon sun.

A trough for green feed extends along the front of the building, being raised one foot above the ground, to prevent the birds from scratching litter into the box. A "hen stanchion" is made with pieces of lath a foot long, placed two and one-fourth inches apart horizontally above and behind the feed trough. The lath slope forward, in order to free the hen's head when the latter is lifted.

In the middle of each 20-foot section of trough is a three-foot tin water tank, which can be lifted out for cleaning, as can the feed boxes.

The nests are located above the feed t[illegible] g and are protected with a sloping door in front and above. The latter is made of an eight-inch board, with hinges on the upper side.

This arrangement makes it possible to feed and water the hens and gather eggs without entering the house or disturbing the fowls. The eaves project forty-two inches in front of the building, sheltering the caretaker and the feeding fowls.

The space above the nests is covered only with wire netting, except a four-foot space on either side of the partition, half of which is occupied by a door. The room used for brooding chicks has the open space covered with cloth doors, which can be lifted up when not in use.

The mash hopper is fixed in an opening in the center of the partition, swinging out to permit of being filled from one side. These feed boxes are filled only once a week. The dropping platform is against the rear wall, the front edge being flush with the partition doors, in order to be handy to the wheelbarrow, which is pushed from room to room, and the litter carrier to be installed later. To support the carrier, two-by-four rafters are used for the long rear slope of the roof, the others being two-by-three.

In order to keep bugs from crawling down from the roosts onto the dropping platform, the roost frame is supported in front with small stove bolts, which extend head downward two inches. "Mites don't like cold iron," explained Johnson.

Instead of the usual heavy roost poles, one-by-two strips are used, laid flat, with wire netting tacked underneath. This materially lessens the weight of the roost frame, which is lifted up to permit of the dropping platform being cleaned.

Concrete floors are covered with clean straw litter, in which grain is fed. Planer shavings are placed in the nests.

Castor bean plants break the direct rays of the sunshine, in front of the henhouse, while walnut trees have been planted in the yards.

IMPROVES NEW PLANT

When Johnson came to Southern California a year ago last September he bought an acre and a third of land at the corner of Fairview avenue and Holly street, near Ross Field and the Government balloon school. Four hundred old hens were purchased for $1.15 each and an equal number of pullets for $1.75.

This "job-lot" of fowls were mostly White Leghorns, but contained a few Black Minorcas. They did not begin laying until the middle of December and were not culled, yet by the next September had earned $1123, an average of $1.40 each.

"No, that does not equal some of the poultry profit figures floating around the country," admitted Johnson. "It is absolute net, however, which cannot be said of many of the poultry earnings claimed. When prices were higher, I cleared $3 per hen."

Culling is to be resumed next year and the flock increased to 1200 or 1500 laying hens, enough to earn a good living. Poultry use is not being made of all the land, part of which may be sold for residential purposes. Similar land nearby is changing hands at $4000 an acre, which is far too high priced for egg production.—O. H. BARNHILL.

Kale for greens and castor beans for shade are two profitable crops on this Southern California poultry ranch

Mrs. Johnson and a Wisconsin friend picking December flowers in the former's front yard, which is beautiful the year around

Johnson's poultry success has attracted to California other Easterners. But he thinks the business overdone.

AGRICULTURAL ALASKA

Where Soil Yields Wealth Other Than Gold

THROUGH the courtesy of the United States Department of Agriculture, ORCHARD and FARM is enabled to publish the accompanying illustrations reflecting Alaskan agricultural development.

The Government maintains several experiment stations in Alaska. At Sitka, small fruit and vegetable culture are receiving most attention. At Kodiak, stock raising is the principal line of investigation. Grain and forage crop work has been paramount at Rampart, while the Fairbanks and Matanuska stations are devoting most of their efforts to working out mixed farming systems adapted to their localities.

It has been demonstrated that Alaska has agricultural possibilities of considerable scope. Facts regarding climate, crops and markets which are astounding to the uninitiated are set forth in Circular No. 1, "Information for Prospective Settlers in Alaska," which may be obtained on request from the Office of Information U. S. D. A., Washington, D. C.

Any one who wants to learn more about our wonderful northern territory, even though not a prospective settler, may read this publication with interest and profit.—*Editor.*

Those who think of Alaska as a land of perpetual ice and snow will be surprised to learn that this potato digging scene was photographed on a ranch near Fairbanks.

Indicative of the variety and quality of Alaskan vegetables is this display of products grown at the Sitka Experiment Station in 1921. The Coast regions are best adapted to market gardening.

This hybrid strawberry, developed at the Sitka station, produced 200 berries on one plant. There are also wild, native varieties.

The Fairbanks homesteader, whose cabin is shown at the left, lost no time in planting flowers, trees and shrubbery!

Right—Native strawberry plant in bloom. Some wild berries are an inch in length.

Examining hybrid berries growing in rows for propagation of runners at Sitka Experiment Station.

Below—An oat field on the Borden ranch, near Fairbanks. Wheat, barley and buckwheat also are grown successfully in different parts of the territory.

ORCHARD *and* FARM

MAY 25, 1924

A Good Dairyman Should Be First a Good Farmer

At Least in Imperial Valley

"IT ALL looks very fine, but aren't you sinking a lot of money in improvements?" inquired a friend, upon inspecting the dairy equipment installed by M. Zummstein on his ranch near Holtville. The answer was: "I'm *investing* considerable money but not *sinking* it. I believe the investment will pay good interest; in fact the equipment should pay for itself." Zummstein is first of all a good farmer and business man, and, incidentally, a very successful milk producer.

By ALBERT J. MASON

SOME milk producers regard their business as a specialty, separate and distinct from tilling the soil. Not so with M. Zummstein, popular and successful Imperial Valley dairy farmer.

"It may be all right to maintain many cows on a small acreage and buy most of the feed under certain conditions, as in the vicinity of a large city," he admits, "but here in this big open country, where we are mostly supplying creameries, the farming end of the business is of primary importance."

Zummstein maintains from 150 to [illegible] head of cattle, including milk cows, dry stock and young stuff, and milks, on the average, 60 cows.

He owns 160 acres of land, of which [illegible] acres is in alfalfa. And where but in the Imperial Valley, could he have maintained 200 animals on this area and had considerable hay left over—as he did last year?

"That's the big advantage we enjoy down here," pointed out this Imperial County producer, after confessing to a few difficulties such as hot summers, silt, and other factors. "A large tonnage of cheap feed is the finest insurance policy the dairyman can have: the premium is small and the dividends large. I have looked into dairy opportunities in many other parts of the State, but it was this one factor more than anything else, which determined me to remain in the Imperial Valley. I know of one place in Sonoma County where 1300 acres was required to keep 120 cows, and the owner bought hay besides."

Having satisfied himself as to his location, Zummstein set about to improve his place. Being a good farmer, he made sure his land was properly leveled, prepared for irrigation, and seeded to alfalfa.

This involved more expense than is sometimes incurred in the Imperial Valley yet he got the home "80" in fine shape, improved and planted, at a total cost for land, labor and buildings of $350 an acre, and his other "80" at a cost of $250 an acre.

The $350 per acre tract included his investment in a home, garage and milk house, $3,000; an artesian well and water system, $2,000, barn and corrals, $1,400; cement troughs, $150.

Thus it will be seen that Zummstein has all the land he needs to feed 200 or more animals, sufficient equipment to handle 75 milk cows, and a comfortable home—with a total investment (exclusive of machinery and work stock) of $34,000.

His average daily production of butterfat the year around is about 40 pounds, and the price in the Valley averages about 50 cents. But this income of more than $7,000 is not the only one on which the Imperial Valley dairyman can count. By feeding skim milk and grain to stock hogs, Zummstein believes it possible to average 50 cents a pound for butter fat. At one time he maintained eight or ten sows, which raised sufficient pigs to use all the skim milk from 60 cows.

But there's still another source of income. Because of winter pasture and plentiful supplies of hay and grain, calves can be raised at minimum expense, and Zummstein built up a fine herd of Guernseys in remarkably short time. An offer received from a large Los Angeles County dairy, however, proved too tempting and he sold 54 head of heifers and young cows at an average price of $160.

"That $8000 looked good at the time," remarked Zummstein on the occasion of our recent visit to our ranch, "but when I started out to buy more Guernseys I felt this deal might have been short-sighted."

Compromising on a mixture of Holsteins and Guernseys, he soon brought up his herd to the desired number, but now is laying plans to concentrate on Guernseys again as soon as he can raise sufficient heifers. He has [illegible] promising young- (Continued on Page 9)

Above—A January scene: part of Zummstein's dairy herd on alfalfa pasture. Holsteins gradually are being displaced by Guernseys, simply as a matteir of personal preference.

Right—Mr. Zummstein and one of the concrete troughs to which water is piped from an artesian well, obviating the necessity of using ditch water for the cattle.

Left—Partial view of milking barn, calf pens and corrals. Hay is fed from stack yard at rear.

Right—Mrs. Zummstein and her little son.

Below—Shade trees and a family orchard add to attractiveness of the ranch home.

ORCHARD and FARM

THE CALIFORNIA AGRICULTURAL WEEKLY

MAY 25, 1924

One Way of Winning—More Intelligent Thinning

This Year It Is More Important Than Ever That Peach Growers Strive for Larger Sizes—Why, How and When to Do the Work

By GEORGE P. WELDON

Pomologist, Chaffey Junior College of Agriculture. Contributing Editor of ORCHARD and FARM.

OF all deciduous fruits grown in California, none responds more readily to careful thinning than the peach. Growers know from experience that thinning is not only necessary but also may be depended upon to produce striking results. This cannot be said of some other fruits, as for example, the apricot.

True, any kind of fruit tree should be relieved when overloaded, but there is not an added increase in size of the apricot comparable to that of the peach.

PROFESSOR WELDON

Growers have come to realize that profit is so dependent upon size, they cannot afford to overlook any factor that promises improvement of their crop in this respect.

During the season of 1923 the canners in California laid down a rule to the effect that no peaches under 2⅜ inches in cross section would be canned. Meeting this size requirement in the case of certain varieties, such as, Ontario (Southern Tuscan), proved to be a bit difficult. Yet the value of a move to prevent the canning of small fruit is conceded to be an important step toward preventing over-canning, with the consequent disastrous holdover.

While it is too early to say what will be demanded on the part of the canner this season, there is little doubt that approximately the same size requirements will be in effect. Thinning, therefore, is again of paramount importance.

NEW METHOD OF THINNING

The work may best be done while the fruit is very small and best results follow the earlier thinning, yet any time before ripening starts will bring some results. There is frequently a heavy drop of fruit during May or June, and most peach growers wait until after this drop is over to do their thinning.

Last season the writer prepared and had published bulletin No. 5 of Chaffey Junior College, which set forth a new idea regarding thinning peaches. This idea was based on the weights of fruits of different sizes, which when known made possible the preparation of a table showing the number of fruits of certain sizes that would be required to make a certain tonnage per acre.

A careful test of this method proved its adequacy and the uncertain thinning methods of the past can be discarded for a substitute method which is based on principles that are much more accurate and scientific. Accompanying this article is the table as it was printed in the bulletin and recommended for use in thinning cling peach varieties.

HOW TO ESTIMATE

In using the table it is necessary first to estimate the amount of fruit that the trees should produce. A full-bearing peach orchard should make at least 10 tons per acre, where conditions are all favorable. The average orchard will not do this well. A five-year-old orchard should produce about five tons per acre under favorable conditions, but in figuring the possible production one must be careful not to overestimate.

Having decided about what the production should be, it is an easy matter to refer to the table where the number of peaches per tree for different plantings that will make the desired tonnage is shown.

A little practice will be required to thin a tree to an approximate number of fruits. By making a rather careful count of what is left after thinning two or three trees a good idea can be fixed in the thinner's mind as to the work with other trees.

The old way of spacing the fruits a certain distance apart may result in leaving entirely too much fruit on a tree, or it may have the opposite results according to the setting of fruit. If the setting is heavy and uniformly distributed, much further spacing will be necessary than in the case of a light setting on one side of a tree and a heavy setting on the other as often happens.

WEIGHTS OF VARIETIES

In other words, the number of fruits is of more importance than their distance apart, and there is no logical reason for a six-inch spacing, if a three-inch spacing on a certain part of a tree is necessary in order that enough fruits may be left for the desired tonnage.

Last season some careful weighings were made of peaches varying in size from two inches to three inches of the Lovell freestone variety. Much to our surprise there was found to be little difference in the weights of clings and freestones. The following tables show the close agreement except in the case of the sizes ranging from two inches to two and one-fourth inches:

Size Peach	Number in 10 lbs. Ontario (Cling)	Number in 10 lbs. Lovell (Freestone)
2 in.	—	56.9
2⅛ in.	63	52.4
2¼ in.	52	50.3
2⅜ in.	46	43.7
2½ in.	38	37
2⅝ in.	33	33
2¾ in.	28	29.2
2⅞ in.	26	24.6
3 in.	23	22

Since freestones weigh about the same as clings, there is no necessity for a separate table for use in thinning the former, but the table as printed may serve for both kinds.

A very interesting fact has been called to our attention by Prof. F. T. Bioletti of the University of California, who became interested in the thinning table as printed in our bulletin.

THE BIOLETTI FORMULA

In making an analysis of the facts presented in the table, Professor Bioletti discovered a law from which he deduced a formula that makes it possible for one to determine with accuracy the number of peaches of the different sizes that will be required to make 10 pounds by a simple arithmetical formula. It is as follows: 600 divided by cube of diameter equals number peaches in 10 pounds.

For example: We refer to the table of cling weights and find that there are 23 three-inch peaches in 10 pounds. Applying the formula and dividing 600 by the cube of three we get the figure 22.2, which is approximately correct.

By remembering this formula it is possible at any time, without the aid of the table, to determine the number of fruits necessary to leave on a tree to secure a desired tonnage.

The principles upon which the peach thinning work is now based can be applied to other fruits as a knowledge of weights is attained. Thus the guesswork of the past is being replaced by something more accurate and reliable, and certainly such an important operation as thinning fruits should be done according to some definite, workable system.

Ready Reference Thinning Schedule for Peaches

No. Tons Per Acre Desired — Number of peaches per tree, of 2¼-in., 2½-in. and 2¾-in. sizes to produce desired tonnage per acre as shown in left-hand column, from trees planted the different distances indicated below:

Tons	20 ft. x 20 ft. 108 trees per a.			22 ft. x 22 ft. 90 trees per a.			24 ft. x 24 ft. 75 trees per a.			25 ft. x 25 ft. 70 trees per a.		
	2¼"	2½"	2¾"	2¼"	2½"	2¾"	2¼"	2½"	2¾"	2¼"	2½"	2¾"
1	104	70	54	124	84	64	149	101	77	160	109	83
2	208	140	108	248	168	128	298	202	154	320	218	166
3	312	210	162	372	252	192	447	303	231	480	327	249
4	416	280	216	496	336	256	596	404	308	640	436	332
5	520	350	270	620	420	320	745	505	385	800	545	415
6	624	420	324	744	504	384	894	606	462	960	654	498
7	728	490	378	868	588	448	1043	707	539	1120	763	581
8	832	560	432	992	672	512	1192	808	616	1280	872	664
9	936	630	486	1116	756	576	1341	909	693	1440	981	747
10	1040	700	540	1240	840	640	1490	1010	770	1600	1090	830

Planning and Developing the Ideal California Ranch Home

"The Stuff That Dreams Are Made Of" Proves to Be Practical and Exacting

By RALPH D. CORNELL

Master in Landscape Architecture—Contributing Editor

[Editor's Note—The landscape architect is an idealist to be sure. And comparatively few of us achieve the perfect estate as he visualizes it. Yet the practical aspects of his work include points which every one who is planning or developing a country home must consider. Many such factors are pointed out in this article, which shows that the completely successful farmstead doesn't simply "happen," but is the result of far-sighted, thoughtful planning.]

IN the pioneering stages of all civilization, man's energies and attention are so consumed by the struggle for mere existence that he cannot give free consideration to the cultural and aesthetic phases of environment, even though he may have an appreciative understanding of their fundamental value to the life of a country. When a land is new, emphasis must be placed upon its material progress, and only as it settles into a state of more or less actual prosperity do its citizens find time for the pleasureable indulgence of their finer instincts.

RALPH D. CORNELL

Pictures of the early ranch homes of new and unsettled communities come to the mind of all who will look back a few years, or who in thought will span the miles [illegible] of the few remaining [illegible] for the [illegible] have been [illegible] if not actually [illegible] chiefly as [illegible] sustenance from the untamed acres of a new land.

The tendency to minimize the area occupied by the house and its grounds still exists on the average farm development, possibly due to the long years of pioneering through which this nation has passed. It is a common thing for the fruit grower to remove from his orchard the minimum of trees that will permit the erection of his house and stables, with fruit trees remaining in the front yard, at the sides and back, to occupy every available foot of surrounding ground. Such home development no doubt will yield the greatest quantity of fruit from the total acreage, but it will never create an attractive home nor insure the highest land values to the property. It is the heritage of an earlier and more strenuous age.

SHOULD REFLECT OWNER

The country home should be, first, an expression of the owner's desires. If a rancher, the owner deals either in livestock or poultry, or in the growing of crops. Whether he is a cattle raiser or a fruit grower, his estate should reflect his desires and should be as true an expression as possible of his personality and of the occupation in which he engages. This does not mean that the front yard is reserved for the running of small stock or that alfalfa is planted in the window boxes; but it does mean that the practical considerations of the ranch life are studied and the different units co-ordinated toward the greatest possible efficiency, at the same time that thought is given to the aesthetic possibilities of development.

The average country landowner intends to use his property either wholly or partly as a source of revenue, and this should not be lost sight of. To be satisfying and attractive, any plan should be first functional, after which the designer's fancy may take such turns as are compatible with this premise.

PHYSICAL ELEMENTS DESCRIBED

The physical elements of the estate are comprised in the farm and service buildings, the house and its accessories, walks, drives, lawns, trees, recreational areas if any, and anything else that may be considered as an element of necessity or desire in the management and enjoyment of the property. The importance of these different elements will vary with the type of farm, the temperament of its owner and the activities in which he chooses to engage.

On large ranches the importance of the house is relatively small, while on the farm of five acres or so, the house bears a very important relation to the entire property. The owner of the small ranch also feels that he can, as a rule, give less actual space to his house and grounds than can the rancher who counts his territory by the hundreds of acres.

Regardless of available yard area, however, there are certain fundamental principles of arrangement that always apply. The interior arrangement of the house bears close relation to the outdoor plan of the grounds, so that the two cannot be considered separately if the best results are sought. The service portions of the house should relate to the service portions of the grounds; and the living rooms of the dwelling should be visually related to the garden development of the grounds and to any extended views of outlying landscape.

HARMONIZE VARIOUS UNITS

If there is a splendid view of distant mountains, of water or what it may be, the house should be placed to take advantage of it; and surely would it be folly to have the kitchen wing of the house monopolize this view or to have stock barns or other such features to totally obliterate it. Such statements may sound trite, and yet that which they warn against repeatedly occurs.

The orientation of the house, which means its placing in relation to the points of the compass, is determined by a number of things such as the access of sunlight and air, prevailing winds, attractive views, directions of ingress and egress and the determined units into which the surroundings of the house are to be divided.

Where a house is surrounded by a number of different units, such as is the case in the typical farm home the problem becomes one of locating not the house alone, but also the mass of appurtenances comprised by the house and its sur- *(Continued on Page 9)*

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY

By THE EDITOR

FOOT-AND-MOUTH SITUATION CLEARING

As this is written it looks as though the foot-and-mouth disease epidemic will be conquered sooner than public officials anticipated.

Early lifting of close quarantine will be a tribute to the hard work and quick action of the authorities in dealing with the first outbreaks. Had the disease been allowed to spread to other counties and other States, the consequences might have been appalling.

Instead of feeling a sense of injury because of temporary inconvenience, the public should entertain deep gratitude towards the officers who directed the campaign. And the unfortunate owners, it seems, have no choice but to grin and bear it.

SLAUGHTER ONLY METHOD OF TREATMENT?

In an effort to get to the bottom of the question agitating so many stockmen and friends of agriculture—whether it might not be possible in future to prevent the recurrence of the disease—ORCHARD and FARM recently exchanged telegrams with Secretary of Agriculture Wallace. The messages, which follow, are self-explanatory:

HON. HENRY C. WALLACE,
SECRETARY OF AGRICULTURE,
WASHINGTON, D. C.

Has an adequate fund, either from Government treasury or private endowment, ever been set aside for intensive scientific study of foot-and-mouth disease to discover cure or preventive measures and do away with wholesale slaughter of valuable breeding animals? If advisable, we should like to propose and promote such a movement. Please wire information and suggestions.—ORCHARD and FARM.

WALLACE'S REPLY NOT REASSURING

In reply to the above inquiry was received the following message from the head of the United States Department of Agriculture:

J. C. KNOLLIN, EDITOR,
ORCHARD and FARM,
LOS ANGELES, CALIFORNIA.

Eminent investigators in European countries have for years been making research studies foot-and-mouth disease. No satisfactory method prevention discovered. In view of intensely infectious nature disease, consider investigational work this country unwise. Might cause further spread. Slaughter method only one successful in accomplishing eradication.—HENRY C. WALLACE, Secretary.

Not much hope of relief in that! About the only protective measure possible is greater vigilance to prevent the introduction of infection in future. Certainly we do not want to be in the position of European countries, where the disease is a constant menace and annually takes an enormous toll in valuable animals.

NO OCCASION FOR PANIC

There has been an inclination on the part of some persons to overemphasize the losses occasioned by the California outbreak. As a matter of fact, a very small percentage of our total animal population has been destroyed.

And, furthermore, there is no reason why anyone should be afraid to enter or remain in the livestock or dairy business in future! If anything, the returns should be more than usually attractive because of the depletion of our herds.

WHAT'S NEW? Keeping Abreast of Agricultural Progress

Farmers Give Away Eggs

IN THE vicinity of Maysville, Kentucky, eggs recently became so cheap 10 cents a dozen—that a dozen farmers decided this crop was too cheap to pay for gathering and marketing. Truck drivers were given all the eggs they cared to gather. This illustrates conditions where poultrymen are unorganized. On the Pacific Coast the price of eggs was high enough to return a living income to producers.

Fresh Pork for France

FRANCE has lifted its ban against fresh American pork and as a result large shipments of hog meat from the United States to Europe are expected to be made. The French people, as well as some other Europeans, consume more or less pork without cooking. In order to make raw meat a safe article of food it is subjected to very low temperatures. This process has been approved by the meat inspection service of the United States Department of Agriculture.

Keeping Out Boll Weevils

BECAUSE of the unusually large California acreage being planted to cotton this year, the State Department of Agriculture has redoubled is efforts to prevent the introduction of the boll weevil, which has ruined the cotton industry in many districts. Seed from infected districts, which has been shipped into California by persons unaware of the danger of infection, is put in quarantine and either destroyed or sent out of the State.

Kill Contra Costa Coyotes

IN ORDER to prevent their distributing the foot-and-mouth disease, several hundred coyotes were killed in Contra Costa County under the direction of Charles G. Poole, of the Biological Survey, in a recent two-weeks' campaign.

In the Merced district more than a thousand coyotes and wildcats were poisoned. While deploring the ravages of the disease which has proved so destructive of cloven-footed animals, stockmen rejoice in the destruction of such large numbers of predatory pests.

Print Sun Maid Stationery

MANY of the 16,500 members of the Sun Maid Raisin Growers' Association are using stationery which the organization furnishes them at the rate of 75 cents for 50 envelopes and 50 letterheads. Each piece bears, in addition to the owner's name and address, the Sun Maid trademark.

"Sun Maid Vineyardist" appears on the paper and "Member Sun Maid Raisin Growers of California. Eat Raisin Bread," on the envelopes.

This stationery is expected to prove an effective means of advertising Sun Maid raisins.

Forty-Pound Cauliflower

A FORTY-POUND cauliflower recently was grown near Florence, Arizona, by Adeltoni Bigue, a Navajo Indian, who also grew the seed which produced this monster vegetable. Commenting upon this achievement, R. B. Sims, superintendent of the State Prison Farm at Florence, remarks:

"I sometimes wonder if Arizona is not overlooking a good bet by importing Mexican laborers, instead of giving our native Navajo Indians a trial. When put to work, Navajos develop the cleverness of Chinese. We have found them very industrious and intelligent workers for growing and picking cotton."

Keeping Up White Egg Prices

IN RESPONSE to criticism of his methods, J. H. Barber, general manager of the Pacific Egg Producers' Co-operative, points to the fact that the average premium price paid for white eggs over brown eggs the past year amounted to 11 cents a dozen, which is practically the same as for the previous year, despite 50 per cent larger receipts of the former.

In 1923 the Pacific Coast shipped 735,000 cases of white eggs to New York, which was 223,000 more than the previous year. Barber handled one-half of this enormous amount, which was twice as much as was sent to him in 1922. Prices were compared with those received for western brown eggs.

Handling Surplus Pig Crop

ACCORDING to F. Edson White, president of Armour & Co., the big meat packers of the United States prevented a ruinous slump in pork prices last year, as a result of 14,000,000 more hogs being marketed in 1923 than during the preceding record year. Despite an increase of 20 per cent in receipts of live animals, the finished product was marketed so efficiently that the price paid for hogs during 1923 was only 1-2-3 cents less than the previous year. The consumption of pork was increased 12 pounds per capita last year.

"This service," White points out, "could not have been rendered but for the nation-wide distribution provided by the national packers, their ability to finance larger purchases than current consumption warranted and their facilities for storing the surplus against the time when the public would need it."

Mail Carriers Report Crops

FOR the first time rural mail carriers this year will report farm crops for the United States Department of Agriculture. The work will begin in September, when 44,000 carriers will distribute report cards to 700,000 farmers, asking the latter to report the acreage of crops harvested. A fair 10 per cent sample of American farmers will be reached by this method, it is expected. The efficiency of rural carriers in collecting swine statistics led the Government to utilize this branch of the mail service in crop reporting.

California Is Commended

THE efficient manner in which the California State Department of Agriculture has handled the foot-and-mouth disease is given the highest praise by President Coolidge, Secretary Wallace and Dr. John R. Mohler, Chief of the Bureau of Animal Industry. The citizens' emergency committee, which recently went to Washington to acquaint Government officials with the situation here, was surprised to find that the above named men were better informed on this subject than many residents of California.

Selling Fruit to Europe

CALIFORNIA is overlooking an excellent opportunity to sell dried and canned fruit in Europe, according to B. R. Kinkhead, who has been investigating conditions there for the California Prune and Apricot Growers' Association.

"Don't imagine that Europeans can't buy," writes Kinkhead. "They can and do buy and consume large quantities of all the good things going, especially the Germans. Rich Germans—of whom there are many—are the most lavish spenders in Europe at the present time. All the Swiss and French are working, earning and spending.

"I have seen almost no California advertising in Europe. An intelligent selling campaign here should bring results, as our products are far superior to those of Europe."

Coming Crop Shortages

INDICATIONS point to serious crop shortages in various parts of the United States this year, due mainly to drouth and late frosts. Only a half crop of California apricots is expected while the Nation's clover seed crop is estimated at 45 per cent of normal.

Many California peach trees had not leafed out by the first week of May, due to the cumulative effects of several dry seasons, according to George P. Weldon, Chaffey Junior College of Agriculture pomologist. Farm Adviser Staunton of Ventura County makes a similar diagnosis of the trouble.

Ventura's lima bean crop is estimated at 25,000 acres, which is little more than half what would have been planted had there been the normal amount of moisture in the ground.

These are a few of the straws which indicate that the winds of 1924 will blow in the direction of decreased production and higher prices.

THEY SAY

"Eggs Must Be Standardized"

FAY JOHNSON

Manager, Poultry Producers of Central California

FAY JOHNSON

POULTRYMEN are having a hard struggle to keep out of red ink these trying days of falling prices and rising storage receipts. There are, however, three bright spots on the egg producer's horizon. One is better stock—certified chicks and pedigreed pullets and cockerels, another, the coming campaign to educate people to EAT MORE EGGS, lastly, the work which is being done to standardize eggs.

Of these, egg standardization offers the greatest immediate relief. The problem of marketing perishable food products is largely one of distributing the supply over the entire year, in order that prices may be equalized throughout the 12 months. This tends to eliminate speculation, which benefits neither producer nor consumer and results in large and continuous consumption.

Cold storage promised to solve the problem, insofar as eggs were concerned, but imperfect methods resulted in a poor product, which gave cold storage eggs a bad reputation. With the discovery of the oil sealing process, which preserves eggs practically as good as fresh, we thought our troubles were over. Dishonest dealers, however, are "bootlegging eggs," deceiving the public as to the true character of goods offered for sale, which demoralizes the market and leads to low prices.

Standardization is our last, best hope, because it will result in all eggs being Government inspected and sold upon their individual merits, regardless of when they were laid or how they have been treated. This will remove most of the element of chance in egg buying and result in greater consumption and better prices.

The California Farm Bureau Federation Today

A Dirt Farmer's View of Our Leading Agricultural Organization—Its Value, Faults and Opportunities as Viewed by Man on Land

By RAY C. GRUHLKE

Solano County Dairy Farmer and Breeder.

ALTHOUGH a quarter of a billion dollars' worth of agricultural products were marketed by California farmers in 1923, I find the Agricultural Extension Service of this State, as well as throughout the United States, has been forbidden to aid the farmers in marketing, or in forming marketing organizations.

"JIM" NELSON
Sec'y Calif. F. B. Fed.

The Farm Bureau—a separate organization, closely allied to the Extension Service—also has shown in the past some inclination to sidestep this most important side of the business of agriculture. The farm adviser system has been severely criticised of late because of its apparent endeavors to encourage greater production, without regard to the ultimate sale of the products.

The sentiment all over the country, however, has resulted in an attempt to correct this evil. In a recent interview with J. W. Nelson, former Assistant State Leader of Agricultural Extension, and now Secretary of the California Farm Bureau Federation, I learned that both the Extension Service and the Federation, together with the American Farm Bureau Federation, are actively supporting in Congress, the Purnell Bill, which calls for a Federal Appropriation of $15,000 annually for each State—this amount to be increased each year until $85,000 is reached. The appropriation is to be used for the purpose of studying farm management, farm economics, marketing and farm financing.

In other words (to quote Mr. Nelson): "It is to cover a field which heretofore has been largely neglected by our State Colleges and the Federal Government."

The membership in the California Farm Bureau Federation is growing yearly, with an increase last year of about 25 per cent. Farmers are learning that this is a service organization, arranged to meet the entire needs of rural life, in the best possible manner, operated for and managed by farmers.

PROGRAM OF WORK

The State Farm Bureau Federation believes in a balanced program of work and is following that idea in order that farmers may receive maximum results from its efforts. The problems of production, standardization, distribution and marketing are all very important lines and must be considered as a unit.

It is believed farmers could benefit themselves greatly by increasing the yields per unit in farm crops, by giving greater attention to the economic production per unit, by improving quality and bringing about more orderly marketing.

In addition, the State program covered the legislative needs of farmers and a plan of education whereby each individual will become more familiar with the important problems, enabling him to assist in developing plans for their solution.

The Federation stands for a square deal and believes that farmers are not entitled to any special consideration over other industries but that they merit equal consideration and should demand only their just dues. The State Federation is securing a very strong foothold in California in its relationship with the various co-operative marketing associations, and is rendering a valuable service to them as a means whereby they may get in closer contact with the members.

This is felt to be a great need, due to the fact that depression has disturbed seriously the morale of growers throughout the State. A number of the Co-operative Marketing Associations have urged their members to join the Farm Bureau, feeling that its program fits the needs of rural life better than any other movement and that a rounded out plan is essential [illegible] harmony.

FARM BUREAU MONTHLY

[illegible] legislators from California are seeking the advice of the Farm Bureau in [illegible] legislative [illegible] the fullest [illegible]. This is a very [illegible] if followed [illegible] will [illegible] [illegible]

future. The publication has been moved to Berkeley and a "re-write man" has been employed full time to refine the paper. The advertising and management also will be revised and directed from the State Federation office.

Only about one-third of the capital stock will be sold. This stock will be distributed in the different counties and each Farm Bureau member will be urged to secure a share or two so far as possible. The stock will be offered at $10 per share with a guaranteed rate of interest of 8 per cent per annum.

Should there be any profits from the publication they will be divided three ways as follows: One-third will go to the stockholders, one-third to the County Farm Bureaus and one-third to the State Farm Bureau Federation.

[Editor's Note—It is to be hoped the Federation will see the wisdom of confining the "Monthly" in scope to its logical field—that of serving as the official organ or "trade journal" of the organization, and not jeopardize its future (as in the case of other similar publications) by attempting to compete with newspapers and established agricultural journals which are in a better position to serve agriculture in all its phases. The publishing business is a distinctive field, in which it is dangerous and unnecessary for farm organizations to intrude beyond the needs of their members for publicity.]

MARKETING PROBLEM FIRST

The federation now believes marketing is one of the most important problems before farmers and is giving its undivided attention in a survey of the various industries in an attempt to secure basic information which may be used as a guide in stimulating the development of new associations as they are needed. Its aim is to assist farmers in the future to avoid many of the mistakes of the past in developing plans for the sale of their products.

An outstanding success along marketing lines at this time is the California Farm Bureau Exchange. This department realizes marketing can be improved and promoted best by development along commodity lines and that greatest progress can be made by promoting one industry at a time. The grain marketing plan now under way is filling a great need in California and has enabled many farmers to secure about 15 cents more per cwt. for their grain in 1923 than they would have received had they sold through private agencies.

This State occupies a peculiar position in grain marketing, and such an organization is capable of increasing the returns to the grain farmers by several millions of dollars annually if the farmers will give it their full support. The management is now under the most able leadership that can be obtained and the overhead has been reduced to the minimum.

As soon as this industry is adequately served, the plans are for an additional commodity to be considered and promoted; others will be served as rapidly as the organization can place each industry needing help upon a substantial basis.

STATE LEGISLATIVE PROGRAM

In addition to supporting the national program, the State Federation has pressed the Raker Bill, which calls for an appropriation from the Federal Government of $40,000 annually, for a Forest Experiment Station in California. The purpose of this station is to study forestry problems looking toward conservation of our timber supply in the future.

The Colorado River project has received special attention and every energy to secure favorable action from Congress on this project is being utilized. The consummation of this work will mean more to California than almost any other undertaking.

An attempt also is being made to complete the Water Resource Survey, started in California several years ago. This is now being pressed and Region No. 1 has taken the lead in this important question.

The Utility Department of the State Farm Bureau Federation is performing a most excellent service and has saved enough money for farmers in the last two or three years to pay its total expenses plus all of the membership fees in the county and State Farm Bureaus for a period of [illegible]0 years, with a handsome margin left. This activity is one of the most important in the Farm Bureau and is [illegible] a very great [illegible].

An additional [illegible] is being [illegible] for the [illegible] counties

whereby the Crop Estimate Service by the Federal Government will be brought closer to each individual farmer in the State. It is planned that reports covering crop prospects shall be supplied to each county on a given day each month, the summary to be discussed in each center meeting for a few minutes. This is to give each farmer an idea of the status of each crop produced in the State and in the entire country, for each month of the growing season. It should serve as a valuable guide to planting.

It is planned further that at each center meeting, following this report, members from the center will give briefly the status of crop conditions in their locality, which data will be forwarded immediately to Sacramento and compiled for use the following month. This information is of the utmost value to farmers in planning their cropping and should be given the fullest support possible.

FARMING A BUSINESS

The State Farm Bureau Federation not only is conducting an extensive business itself, but is attempting also to place farming on a more business-like basis.

To quote Secretary Nelson: "Farming should be considered as a business and all the activities of those engaged in this industry should be placed on a business basis. If this is to be done, we all need the assistance of every source possible in order to help the industry and secure the most favorable working program possible to promote the various lines. Mass action on problems of concern to agriculture is vitally essential if we expect to secure results. If membership can be materially increased, it will mean that many of our pressing problems will be solved at a much earlier time.

"The small amount of dues requested of the farmers for the service being given places them in a very favorable position, because no other attempt has ever been made to meet the needs of agriculture so favorably, as the present move, and it is surely worthy of every man's support. It is highly desirable that the entire farm family be interested in this movement, because they are all concerned in the success of the work.

"The Farm Bureau is a service organization for the purpose of promoting all lines of agriculture and if farmers appreciate this they will be able to get relief on many of their problems at a much earlier date."

BIG MEN REQUIRED

There is one thing, I believe that the Farm Bureau should not economize on, and that is the securing of the very best men in the State to manage the organization and its various departments. And when a good man is secured, no question of salary should stand in the way of insuring his permanent connection with the organization.

I believe the farmers throughout the State are pleased with the selection of Jim Nelson as secretary. His agricultural experience throughout the United States has placed him in a position to be of immense value to the organization.

The functions of the State Federation are far-reaching, even touching the War Department at Washington. Farmers might wonder what their organization has to do with the War Department, at least in peace times. Yet this branch of the Federal Government controls navigable waters. Farmers who ship grain in this State own a lease upon the largest waterfront grain elevator in the West.

Congress has appropriated money to deepen the channel to this elevator and the War Department has started dredging. But they started to dredge in the Golden Gate channel first and it will take three years at the present rate of operation before they will reach the estuary to the elevator.

[Editor's Note—Whether somebody was "taken in" by leasing the elevator for the producers under these conditions is another question.]

In the meantime the elevator stands idle. That is indeed a problem for the Farm Bureau to work on. This is but one of the many ramifications of the organization and but one of the reasons for the need and retention of the best men possible at its head.

The problems of the farmers reach all activities of the nation and touch every man's pocketbook. Agriculture is indeed the "basic [illegible]" and the California Farm Bureau Federation therefore is of paramount importance to our general [illegible] welfare.

Practical POULTRY *Pointers*

By W. J. DRYDEN

CULLING TIME—It is well gradually to start culling the flock in May or June so that by July or August only the profitable layers will be left.

EGG WASHING HINT—When it is necessary to wash eggs, place them on a tray to dry. By wiping the eggs after they have been washed, the shell finish will be removed and the value for storage destroyed.

MEDICATION UNPROFITABLE?—Prof. Van Es, head of Animal Pathology and Hygiene Department of the University of Nebraska, says it is his personal belief there never was a chicken saved by use of medicine. This is worthy of serious consideration. It is true at any rate that effort exerted in trying to cure sick chickens would bring better results if applied to preventive measures.

WHICH BREED?—The question is often asked as to which breed is the most profitable to keep. The strain, rather than the breed, should be the main consideration. There is no reason why any breed could not be developed in a few years to a high egg-production standard by proper selection. The leghorns have the benefit over other breeds on account of having been developed as layers longer than the others.

DOES TRAPNESTING PAY?—Despite the acknowledged value of trapnests there is little reason to use them on 80 per cent of the poultry farms of the country. Only those farms which start with good stock and intend to build up a high-class breeding trade will be able to afford to operate the trapnest, and then only if sufficient capital is available to carry on the work for some time or until a profitable business has been developed.

MORE LAYING CONTESTS—Idaho is the latest State in the Far West to start an egg-laying contest. There is also talk of starting one in Oregon but nothing definite has been done except to receive promise of co-operation from the State college.

CULL EARLY MOLTERS—Hens which molt during July or August should be culled—providing they are early molters and have not been forced into a molt by poor feeding or management.

DON'T GUESS AT AILMENTS—When fowls die suddenly from no apparent cause a contagious disease of the cholera type is likely to be the trouble. Instead of waiting to find out what all of the neighbors think about it send a specimen from the diseased flock—one of the dead birds—to the poultry department of the State college or to the nearest experiment station or laboratory. Describe to them as fully as possible the symptoms and conditions. When you get their report you will know what is wrong and what preventive and treatment methods to follow.

GREENS PREVENT DISEASE—The growing of green crops in the poultry runs is one of the best disease preventive methods known. It is doubtful if too much can be done to keep the runs fresh and the soil sweet. A healthy flock will spend a large part of the day in the yard and its condition will be determined largely by the condition of the soil around the house.

LOW AVERAGE PRODUCTION—The average hen lays 108 eggs a year. The goal toward which most poultrymen strive is the 300-egg mark. The average between the two is 204, of which anyone may well be proud if his flock reaches it; there are few that do.

POULTRY FAKES NUMEROUS—There is as much faking in poultry advertising as in any other business enterprise. Many farms advertise eggs from trapnested stock when not one trapnest is found on the place. In most of these cases, of course, the original stock came of trapnested lines. I know of one man who advertised trapnested barred rocks and when the eggs were hatched part of them were Rhode Island Reds—he had bought the eggs on the open market.

How to Raise the Dairy Heifer

By W. E. TOMSON
Branch College of Agriculture, University of California, Davis, Cal.

IN order to maintain the present number of approximately 23,000,000 dairy cows in the United States, 4,000,000 heifers must come in milk every year. This in no way takes in consideration increased consumption by the present population or increased production to meet the demands of a greater population. It is plainly evident that the raising of dairy heifers is a great and important task.

There are several methods that may be followed in raising calves, depending upon the form in which one is marketing his products, such as feeding whole milk, skim milk, or milk substitutes, or a combination of methods. The most common plan is to feed whole milk for a time and then change to skim milk. Whole milk is nature's best food, but the feeding of it to any great extent makes the raising of calves rather expensive. Experiments show that almost as good success can be obtained by raising calves on skim milk. Practically the only difference in composition between whole milk and skim milk is the absence of fat in skim milk as shown in the following table:

	Average Composition	
	Whole Milk	Skim Milk
Water	87.10	90.50
Fat	3.90	.10
Protein	3.40	3.57
Sugar	4.75	4.95
Ash	.75	.78

Butter fat is used by the calf to produce fat and heat and not for growth, while the protein is used for growth and the development of muscle and tendons. The calf raised on skim milk should be growthy and thrifty but will not be so fat during the first six months as one fed whole milk.

Dairymen differ as to when the calf should be taken from its mother, some preferring to leave the calf for the first three or four days, while others take the calf away soon after birth. The common practice at the University Farm is the latter method unless the cow's udder is badly inflamed, then the calf is left with the cow for two or three days. The calf, when nursing the cow, usually does more or less butting which in a way massages the udder, thereby assisting in relieving the inflammation. Regardless of when the calf is taken from its mother it should be given its mother's milk for the first three or four days.

AMOUNT OF MILK TO FEED

The average sized calf should be fed about eight pounds of milk daily at first. At the end of two weeks, if the calf is in good condition, the change from whole milk to skim milk may be started, taking about ten days to make the change. As the calf gets older more milk should be fed. Some breeders practice feeding 10 pounds of milk for the first 100 pounds live weight, five pounds more for the second 100 pounds live weight and two and one-half pounds more for the third 100 pounds weight.

When a calf is two weeks old, it will begin to eat a little grain and a small amount of hay. No more grain should be fed than it will clean up. A calf will not require more than one-half to one pound a day of grain until six months of age and not more than two pounds a day from six months to one year of age. The grain mixture fed at the University Farm is made up of 450 pounds rolled oats, 375 pounds barley, 180 pounds bran, 50 pounds oil meal. Good oat hay is preferable to alfalfa hay for the small calf, although alfalfa hay may be fed with good results.

After the calf is taken off of milk the greatest difficulty has been overcome. The calf will not need much attention if it is put on pasture or fed a good roughage till it is bred. Some grain should be given the heifer during the three or four weeks preceding calving.

Jerseys and Guernseys that are well grown may be bred to have their first calves at from 24 to 26 months and Holsteins and Ayrshires at 26 to 28 months of age.

PERCENTAGE OF DAIRY BREEDS

Of the total number of purebred dairy cattle of the United States, about 58 per cent are Holstein Fresians, 25 per cent Jerseys, 9 per cent Guernseys, 3 per cent Ayrshires and 1 per cent Brown Swiss, census figures show

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The New BULLETINS

AMONG new bulletins and circulars issued by the United States Department of Agriculture, the following are deserving of special mention. They may be obtained free on application to the Division of Publications, Department of Agriculture, Washington, D. C. Order by number:

1377—Marketing Poultry.
1367—Control of Potato Tuber Diseases.
1188—Costs and Farm Practices in Producing Potatoes.
1222—Growth and Feeding of Honeybee Larvae.
1357—Castration of Hogs.
1371—Diseases and Insects of Garden Vegetables.
1397—Mouse Control in Field and Orchard.
1191—Potash From Kelp.
1380—Apple Scald and Its Control.
1069—Relation of Production to Income From Dairy Cows.

Stark Brothers, Louisiana, Mo., have issued an up-to-date manual of Modern Orchard Practice, which they are sending free to all fruit grower applicants. (Mention ORCHARD and FARM.)

Water Walnuts Well

THE importance of giving walnut trees liberal irrigations early in the season is indicated by the fact that the nuts increase in size 483 per cent during the first four weeks after setting, according to Prof. L. D. Batchelor of the University of California, who has found that in the following 28-day period nut growth amounts to only 18 per cent.

"If walnut growers will act upon this information and thoroughly wet their ground to a depth of at least six feet early in the season they can make No. 1 nuts out of what would otherwise be No. 2's," declares Carlyle Thorpe general manager of the California Walnut Growers' Association. "Every dry season the crop runs largely to small nuts, which do not bring a profitable price and are difficult to dispose of, even at low figures. Spring rains moistened the ground, but not to sufficient depth. Early, heavy irrigation is needed."

Walnut growth tests were made in the orchard of R. M. Fay of Anaheim by D. C. Wylie of the Association, with Placentia nuts. Soft shelled varieties need water somewhat earlier than budded nuts. Owing to the lateness of the present season, there is still time materially to increase the size of the walnut crop by liberal watering.

Growing Athel Trees

REPLYING to an inquiry from C. C. Cavanah, Palm Springs (Riverside County)—In order to obtain the surest results with athel trees, root the cuttings in nursery rows, which can be watered occasionally. Do not give them too much water but set the cuttings low in the ground.

This tree is easy to root and the cuttings may be planted directly in the permanent rows next spring, but my experience with them is that not all will grow and there will need to be some replanting. I think the amount of this replanting will be lessened by rooting the cuttings first and then transplanting only those which show vigorous growth.—J. ELIOT COIT.

Fertilizing Gardens

SINCE nitrogen is the soil element usually lacking in California gardens, application of sulphate of ammonia is generally valuable, points out Prof. George P. Weldon, contributing editor, in answer to a letter of inquiry from a Monrovia subscriber. Other good forms of nitrogenous fertilizer are dried blood, cottonseed meal and nitrate of soda.

If potash and phosphoric acid are needed, a complete fertilizer containing these elements and also rich in nitrogen, is desirable. All commercial fertilizers are marked with analysis of contents, therefore it is easy for purchasers to see just what they are getting.—J. ELIOT COIT

HONEY FROM COTTON BLOSSOMS

Cotton is a valuable honey plant in those regions suited to its cultivation. It belongs to the Malvaceae mallow family, all members of which—from the barnyard "cheese plant" to giant tree cotton—yield more or less nectar. In the Imperial Valley the yield of surplus cotton honey ranges from 15 to 30 pounds per colony. Usually it is mixed with alfalfa honey and sold as the latter.—J. D. BIXBY, SR.

Irrigation Lessons

THE old saying that it is unnecessary to irrigate the soils in the fertile and productive Napa Valley has proved to be a myth. We find those farmers who will irrigate, not only double, but in many cases treble the production of their neighbors, who for one reason or another are not able to supplement the natural supply of water in their orchards.

Recently a series of irrigation demonstrations was conducted in Napa County by G. E. Brown of the Division of Irrigation of the University of California, under the auspices of the farm adviser's office. There were 151 farmers in attendance at these demonstrations. All

Hillside irrigation on the N. P. Cole ranch, near Rutherford (Napa County). See article for description.

expressed themselves as most highly pleased with the facts presented to them.

It was found that different soils will absorb water at a different rate. In one orchard a two-inch application of water had resulted in a penetration of thirty inches. In another orchard the same application penetrated only twelve inches.

The soil that was penetrated to a depth of thirty inches was a sandy silt, deposited by a creek; the other soil was of a residual type underlaid with clay. In one orchard where a demonstration meeting was held, the farmer found he had but twenty inches of good soil under which was a gravel deposit, placed there by some stream, ages past. The various types of soil responded differently to the application of the water.

It was pointed out to the farmers that due to the fact we are facing what may be an exceptionally dry season, conditions make it necessary for the farmer to conserve all the moisture possible. For this reason it was recommended that all cover crops be destroyed immediately, if not already done, that the soil be placed in a suitable condition to receive the water; that water be applied, and that in the application of water the soil auger be used to determine the depth of penetration. It was his recommendation that water be applied until it had penetrated to a depth of five feet.

Check plots were laid out on the N. P. Cole ranch, at Rutherford, by D. O. Lambert, superintendant. The different checks had received different quantities of water. One check had received two inches of water, the second, four inches; the third, six inches, and the fourth, eight inches. In this field one inch of water penetrated an average of only seven inches of soil.

The accompanying photograph shows how Lambert irrigated a hillside by means of small streams of water taken from a ditch. In this case he sets the small stream run for nine days, as it requires that long to penetrate five feet. It was the advice of Mr. Brown that in irrigating soils the water should be kept on long enough to get at least a five foot penetration.

The subject of irrigation is getting a great deal of attention in this county at present, and it seems that before long we will make use of all of the water available.

It has been found in Napa County that an irrigated tree will stand several more degrees of frost without injury than the non-irrigated tree. It will also resist pests and fungus diseases better than a tree that is weakened because of lack of moisture.

The average cost per acre of irrigation here is about $4 per application. Most of the farmers do not have to lift the water more than thirty feet.

In conclusion, it was pointed out to the farmers that with irrigation comes the necessity of the proper drainage of certain soils. This is being pointed out and demonstrated under a separate project.—H. J. BAADE, Napa County Farm Adviser.

Your Garden of Flowers

By HELEN TEMPLE

PLANTING LATE GARDENS— Come out into your gardens, all [illegible] folk who live in the valleys. Summer soon will be upon you and then [illegible] can't plant a flower garden. While living in the Sacramento Valley I learned that summer-planted gardens were not successful. Flowers are scheduled to bloom at a certain time of the year, especially the annuals. Those which bloom in the summer must grow and store up a lot of energy to produce good blossoms. If we don't hustle out and plant the summer and fall blooming annuals before June we are going to be disappointed.

HELEN TEMPLE

We shall have flowers from these [illegible] planted seeds or seedlings, but [illegible] won't be up to catalog description and the plants themselves will [illegible] so tired out trying to get their blossoms ready in time they will forget all about making much growth. We shall be so disappointed in the poor little annuals we'll feel like telling everybody not to select flower seeds from the catalog we ordered from. [illegible] the fault will be ours, not the catalog maker's.

Seed sown now must be planted unusually deep, as the top soil dries out very rapidly. Be sure you have a good mulch around all the little seedlings which have been transplanted in the interior districts of California. Protect from the hot sun until they have made an inch or two of growth. This will indicate the roots are well established, and tell you when plants can take care of themselves without shade. Above all, keep the top soil loose. When you irrigate, cultivate afterwards as soon as possible, leaving an inch or two of pulverized soil on top [illegible] hold the moisture.

VINES FOR THE INTERIOR—We need vines in the interior valleys, where they are actual necessities. A vine-covered porch is irresistibly attractive, expressing coolness with beauty and sending out an invitation to the weary to stop and rest and forget the hot day.

Of course permanent vines are best for interior planting, but the new home without a vine must not wait for the slower growth of the permanent vine. Plant the latter to be sure, but also plant a rapid growing annual vine for this coming summer. The kudzu vine grows quickly, covering the porch in an unbelievably short time. It continues green until frosted down but will come up from the roots next spring.

The cardinal climber grows about 30 feet in a season. It is related to the cypress vine, but is coarser and heavier in growth. It requires good, rich soil for best results. Like the kudzu vine, it should be planted after frosts. Buy roots of both these vines, for the seeds are slow to germinate. Roots set out now will grow very rapidly.

Other good annual climbers are moonflower, madeira vine, cathedral bells and Mexican morning glory. The first named plant grows 25 to 30 feet [illegible] a season and is a great bloomer, clustered with lavender pink flowers [illegible] or 12 inches apart. Roots are taken [illegible] in winter and stored like other [illegible] bulbs.

You surely will find one or more of these vines an especial attraction for the interior valleys this summer. Set them out as soon as you can. If you are [illegible] little late you can get them in pots [illegible] full leaf. They may be shifted with very little trouble from pot to soil. If the plant has been grown in a greenhouse, protect it for two or three [illegible] with lath or a burlap-covered [illegible]. A plant from a greenhouse is tender and must gradually become [illegible] to outdoor conditions or it [illegible] its leaves.

PLANTING LATE PERENNIALS— All small perennial plants should [illegible] set now as soon as possible. In [illegible] interior. Planting now will give [illegible] time to establish roots for [illegible] during the summer [illegible]. If you carry the little perennials over until fall to plant out [illegible] it then to [illegible] deeper [illegible].

[illegible] they [illegible] th in interior [illegible] the [illegible] that [illegible] been [illegible]

tubers with about three inches of pulverized soil. As they grow, draw soil in until top of trench is reached. Irrigate and cultivate often, as dahlias are hearty growers.

Other bulbs, such as gladioli, may be planted in the interior until July 15. The gladiolus has become one of our most important flowers in California, owing to its long season of blooming from successive plantings and the long keeping qualities of the blossoms.

Cut the spikes of bloom as soon as the first flower is fully opened and give them fresh water each day. Cut off the tips of the stems every day and pull off the withered blooms after cutting. Do not cut the leaves of the gladiolus when cutting bloom spikes. The bulbs need the leaves to insure ripening properly.

DIG AND STORE EARLY BULBS— Tulips should be lifted and stored as soon as they have died down, or the leaves become brown, which shows the bulb is ripe and ready for storing. Shake all soil from the bulbs, then pack in layers of paper or excelsior in clean, flat boxes or crates. Store in a cool, dark, dry cellar or similar location.

Treat hyacinth bulbs in a similar manner. In storing a few bulbs of this type wrap each one in tissue paper, pack them loosely in a stout pasteboard box and label them. We feel so sure we won't forget what this bulb or that one is that often we take a chance with our memory. But at planting time we feel so uncertain about them we aren't at all sure where each bulb should be placed.

Do not dig narcissi or daffodils. They should remain in the ground until they begin crowding. Once every three or four years is quite often enough to separate them. The clumps which have been undisturbed for two or three years produce the best results in effective blooming. However, if it is necessary to lift these bulbs, do not pull them. Withhold water until the leaves are dried, then dig carefully and store as recommended for tulips.

Tulips, hyacinths and narcissi may be replanted in September or October.

ROSE BEETLES AND MILDEW— Some varieties of roses are subject to mildew, while all varieties are food for beetles. Mildewing varieties are benefited by sulphur or tobacco solutions after they have become infected. However, the best method to eliminate mildew is to use preventive measures. Keep ground thoroughly cultivated and apply a little lime occasionally. Do not sprinkle rose bushes until they have lost the heat of day entirely and do not sprinkle them while the sun shines. Rapid changes of temperature, a close, damp situation and indiscriminate sprinkling are the chief causes of mildew.

Beetles that come in the night and leave destruction behind them in our rose gardens will simply thrive on bushes sprinkled or sprayed with sulphur and tobacco. The kerosene emulsion recommended for aphis and mildew seems to have no effect on them unless it strikes them.

Arsenate of lead is a most effective remedy for beetles. They may begin eating, but that is the beginning of their end. For beetles spray the bushes thoroughly with a solution composed of two ounces of arsenate of lead to a gallon of water. This solution does not wash off readily and does not injure the foliage, if applied early in the morning before the sun is up, or late in the evening after the sun has set.

I am always glad to answer questions, but please inclose an addressed, stamped envelope. At times I have found it almost impossible to decipher a name or address. Three letters have been returned because I was unable to secure the correct address. Address your letters to me in care of ORCHARD and FARM, with self-addressed envelope inclosed, and I will answer as promptly as possible.

Rhubarb Prospects Good

THAT conditions have not been more propitious for several years to make money from rhubarb is the contention of J. B. Wagner and Sons of Lamanda Park, (Pasadena), who developed the famous "Panama" strain and who have set out a new field of 40 acres. The unprecedented era of real estate subdivision in Southern California is said to have cut down the acreage devoted to this specialty crop with consequent prospects of high prices this season.

Information For Beginning Beekeepers

AM thinking of re-entering the bee business after being out of it for 20 years. Is it possible to make money with bees, taking one year with another?

Which county is best adapted to honey production: Santa Clara, Monterey or San Benito?

Are 300 colonies too many for one location, as a rule?

What is the average yield per colony in this district?

Is an alfalfa country better for bees than a fruit community?

Does alfalfa honey bring as good prices as that which is obtained from fruit?

Is honey production a business in itself, or only a side line?

Has the A. I. Root system of beekeeping changed materially in the past 20 years?

Are there laws regulating the keeping of bees near highways and private property?—C. B. HOAG, Santa Cruz.

There are just as good opportunities in beekeeping as in any other branch of agriculture. Of course, one must exercise good judgment and not try to produce honey in localities where nature does not provide it. Of the counties you mention, Monterey contains the largest and best bee ranges.

Dozens of men and a few women are keeping bees in that part of the State, but conditions have changed so much in the last decade that few locations give the amount of profit that can be obtained by "migrating"—moving to the best bee pasture.

About 100 colonies per location is the general rule in the San Joaquin and Sacramento valleys.

There is too great a variation in honey yields to estimate average production. Much depends upon management as well as natural advantages.

Fruit bloom is brief and the quality of honey inferior. Alfalfa gives a long season.

Alfalfa brings higher prices than fruit nectar and is better known in the wholesale markets.

Hundreds of men make honey production their sole business, while hundreds more raise bees and queens for sale.

The Root or Langstroth system of honey production and the fixtures made under this designation have become the standard the world over. Of course constant improvements are being made. Adapt your fixtures to the demands of your locality and market. The style makes little difference, only must be labor-saving and efficient. Get the honey—the method is your own affair.

There are no State or county laws governing location of bee hives, but no beekeeper has the right to make a public nuisance of his occupation or his property. Anyone so doing can be prosecuted and the nuisance abated by legal action.—J. D. BIXBY, SR.

Pesky Yellow Jackets

IN some localities, especially in drouthy years, yellow jackets are a serious pest in the apiary. They destroy great numbers of bees, which they pounce on as the insects enter or leave the hive and cut the bee in two at the thorax. The abdomen is all they seem to care for, probably because only this part of the bee is used for food for the larval hornets. If a colony is weak and unable to keep yellow jackets out of the hive the latter also will eat considerable honey.

The best remedy is the common wire flytrap. Bait it with fresh meat or liver and don't feel concerned if it isn't so very fresh the yellow jackets will like it all the better.

If these pests are very abundant, outside poisoning may be resorted to. Take pieces of fresh meat or liver of any kind, dip in a solution of sulphuric acid—say three parts of water to one of chemical—and hang up in or near the apiary. Put the bait high enough up so fowls or pets are not likely to disturb it.

Moths are an effect, not a cause, of weak colonies. A strong force of bees, particularly Italians, will keep moths killed off.—J. D. BIXBY, SR.

A Valuable Aid in Fighting the Foot and Mouth Disease

Paint and disinfect your dairy barn interiors with Carbola, the Disinfecting White Paint. Spray it or brush it on walls, ceilings, floors, mangers, stanchions, etc. Cover every surface where foot and mouth disease germs might hide.

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There are over 8,000 hardware, feed, seed and poultry supply dealers handling Carbola. Your dealer has Carbola or can get it from Ansel W. Robison, 1196 Market St., San Francisco, or from the Germain Seed & Plant Company Los Angeles both Wholesale Distributors of Carbola. If your dealer cannot supply you, order direct from the nearest of these two distributors. Satisfaction or money back.

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Agricultural Leaders of the Pacific West

ROBERT N. WILSON

Agricultural Department, California Development Association

ROBERT N. WILSON, former Secretary California Agricultural Legislative committee, recently took his desk at the California Development Association as Director of the Agricultural Department.

ROBERT N. WILSON

His appointment to this office is accredited by industrial leaders as a great asset to the agricultural interests of the State. His resignation as Executive Secretary of the Agricultural Legislative committee, representing 65,000 California farmers, which office he has held since its inception four years ago, was made effective March 24 to allow him to take over his new duties.

Graduated from the Colorado Agricultural College, Wilson spent six years in the employ of the United States Department of Agriculture in Utah, Arizona, Virginia, Florida and Washington, D. C. Later he was appointed County Farm Adviser in Palm Beach County, Florida, and from there journeyed to California as County Farm Adviser of Riverside County. It was while holding this position that he received his appointment as Executive Secretary of the Agricultural Legislative committee.

Charles W. Helser, president of the association, states that with Wilson in charge of the agricultural activities of the organization, the abilities of the association for aiding the farmer will be enhanced many fold, as he is one of the best informed men on State agricultural conditions in California, and his life's work has been in the interests of the agricultural producer.

Wilson's immediate plan of action calls for the formulation of a definite program of Statewide agricultural development based upon accurate knowledge of the conditions and problems of the California farmer. Co-operation with the marketing organizations, a closer relationship between farm production and market demands, and a proper representation of the interests of agriculture in all plans of State development are fundamental principles around which activities of the new department will be built.

DENMARK DAIRYING PROSPERS

Dairying in Denmark is back on the pre-war basis. The number of milk cows had increased, at the close of 1923, three per cent over the total number in 1924. The number of pigs has increased 50 per cent.—CALIFORNIA DAIRY COUNCIL.

Farmers' Classified Market Place

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PULLETS RAISED TO ORDER—White Leghorns from pedigreed trap-nested proven producers. All ages. MRS. H. GILLESPIE, Tres Pinos, Calif.

BABY CHICKS, all kinds, hatching each Monday. Ducklings, turkeys, hatching eggs. Pullets, pigeons, rabbits. FANCIERS' EXCHANGE, 640 S. Main St Los Angeles

POULTRY AND BULB FARM—2000 high-bred hens. Last word in modern equipment at famous all-year beach resort BOX 365, CAPITOLA, CALIFORNIA.

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POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks Intensive poultry colony will make you a comfortable living on a very little land Near Los Angeles. Write for literature CHARLES WEEKS, Owensmouth Calif

CUTOVER and partly improved lands, near Deer Park, 23 mi north of Spokane rich, level land, well watered free lumber; credit for clearing 10 to 1[illegible] yrs pay, 6 per cent. DEER PARK LUMBER COMPANY, 214 Hutton Bldg., Spokane, Wash.

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CASH BUYERS want Western farms. Describe and state lowest price R A McNOWN, 367 Wilkinson Bldg Omaha, Neb

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BANANA PLANTS and banana groves for sale. Big profits. Wm Boles, Oldsmar Fla.

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HOMESPUN TOBACCO: Chewing 5 lbs $1.75 10, $3 smoking, 5 lbs., $1.2[illegible]; 10, $2; pipe and recipe free pay when received. CO-OPERATIVE FARMERS, Paducah, Ky.

MISCELLANEOUS

SEX-O-METERS—Wonderful invention. Only article of this kind manufactured and sold. Shows sex (male or female) of any person, animal, fowl, insect, tree, vine or bush. Shows which eggs are fertile which will hatch Shows the eggs that contain pullets or roosters Hatchers and poultry raisers can now guarantee the sex of eggs or baby chicks. Nursery men and fruit growers tell sex of trees, vines and bushes. Tell which to plant for profit and heavy production. Shows facts about human sex that every person should know I have the entire U. S. and Canadian selling rights and agency Owing to the heavy demand for Sex-o-Meters my supply is getting limited Order one now My famous formula "Triple Egg Producer" given absolutely free with every Sex-o-Meter purchased for $1.00 postoffice or express money order. A wonder for picking out eggs for preserving, processing or putting down for family use or selling when eggs bring big market prices C. P FARNSWORTH, P. O. Box 185, Tracy, Calif.

LAWNSHOWER SQUARE SPRAY SPRINKLERS distribute water uniformly over a large SQUARE AREA, reaching CORNERS of lawn or garden without flooding sidewalks and wasting water Cast brass Price $1.25 post paid. Money refunded if not satisfactory. LAWNSHOWER MFG. CO., 727 Tennessee St., Vallejo, Calif

When answering advertisements please mention this paper.

Nothing New in the Poultry Business

This Venerable Poultryman Has Followed the Game for Sixty Years, But Says He's Still Learning

FOR nearly 60 years Dr. Joseph E. Blackshaw of San Jacinto, California, has been actively engaged in the poultry business, succeeding here, failing there, developing new theories and proving others not so new.

Dr. Blackshaw started in the business when little was known about it except what the hen taught—and after all the hen is a pretty reliable teacher. It would be well if all her methods could be followed on a large scale.

Several poultry authorities take the credit for having "discovered" the feeding of dry mash, but as in the case of many other "modern" improvements "that man Blackshaw" was feeding dry mash before most of these men knew there was such a thing as a hen.

How he started to feed dry mash is simple enough for anyone to understand who knows Dr. Blackshaw. He is a man who gives considerable time to details and holds cleanliness next to Godliness. He did not like the idea of mixing the mash wet, as the chickens became too dirty. He figured they could drink their water and after eating they would mix their own wet mash. Trying out the system, he had exceptionally good success, raising 42 chicks out of 43 to full growth, with the help of a fireless brooder.

Dr. Blackshaw did not consider that he had made a new discovery, but he knew he got excellent results and that he kept his chickens clean.

THE STEAM INCUBATOR

About 45 years ago he read chicks could be hatched by steam heat. He set about to construct such a machine after his own ideas. It was heated by a lamp which required watching 24 hours a day, but as Blackshaw explains, "I was young then and nothing was too hard so long as I was striving for a certain result."

I take it he was not the best of carpenters, or at any rate the ventilation of the machine was provided by [illegible] doors and other fittings.

Because he had seen the h[illegible] and cool the eggs, he also turned eggs in the incubator. He sprinkled the eggs with warm [illegible] Out of the 60 eggs set he got 43 [illegible] all excepting one reaching full [illegible]

The machine cost him $8.50 [illegible] and he later sold it for $2[illegible] to a [illegible] who hatched 200 chicks with [illegible] first season. It seems that she w[illegible] willing to watch the lamp day [illegible] night. There was no regulator or [illegible] modern improvements which permit [illegible] poultryman to sleep while the [illegible] hatch.

HIS FEEDING METHOD[illegible]

His methods of feeding nearly [illegible] century ago did not differ much [illegible] the present system. First, he [illegible] the chicks on wheat and corn [illegible] in the home coffee mill. This wa[illegible] lowed in a few days by a dry m[illegible] of bran, shorts and a little corn [illegible] once in a while cottage cheese [illegible] given in a limited amount. He [illegible] provided sod for them greens.

Blackshaw is a strong bel[illegible] feeding little but often. He [illegible] feeds by weight and has worked [illegible] scale for the first month on the [illegible] his experiences. He has had [illegible] not only in raising good chicks, but [illegible] at the laying contests and elsew[illegible]

To my knowledge he is one [illegible] active poultryman, and also one [illegible] first if not the first to use an i[illegible] in California. There may be [illegible] who proceeded him in trying ou[illegible] new invention, but I have no know[illegible] of any.

He learned nearly 25 years ah[illegible] the rest of the poultry world [illegible] raise chickens properly and he [illegible] this by watching the hen. Perha[illegible] have yet much to learn by st[illegible] nature even more than we have [illegible] in the past. —W. J. DRY[illegible]

Shooting Stumps and Blasting Boulders

A CALIFORNIA cutover-land rancher who has become an expert in shooting stumps and boulders with dynamite gives the following directions for ridding land of these troublesome objects:

Punch a hole with the crowbar into the ground under the stump in a slanting direction, so the bottom of the hole comes just under the center of the stump and about two feet below it. Place the charge of dynamite, one cartridge at a time, in the hole and push each cartridge down into the bottom of the hole with the tamping stick, pressing it down gently but firmly, so the dynamite will fill the bottom of the hole and leave no air spaces.

If the hole is dry, slitting the paper wrapper of the cartridge lengthwise with a sharp knife will make it easier to pack the explosive solidly without air spaces, but if the hole is wet it is better not to slit the paper, as moisture may make the dynamite harder to explode and less effective.

Next take an extra cartridge and make a primer with which to explode the charge. To do this cut off about three feet of fuse from the roll, making the cut square across, slit a blasting cap over this freshly-cut end of the fuse so that the fuse touches the explosive in the cap, then crimp the cap firmly on the fuse with the cap crimper. Now punch a hole with the pointed leg of the cap crimper in the side of the cartridge about an inch from one end and slanting toward the other end.

PREPARING THE PRIMER

Place the cap with fuse attached in this hole and tie a string first around the fuse about an inch above the cap and then around the cartridge to prevent the cap from being pulled out of the cartridge. If the hole is wet, smear the joint between blasting cap and fuse and between blasting cap and cartridge with cap-sealing compound, soap or axle grease to keep out the water.

Put this primer in the hole and push it down with the tamping stick until it meets the rest of the charge Fill the hole with loose earth, pressing the first few inches in gently with the tamping stick and then packing it tightly to the mouth of the hole, taking care all the while not to break or kink the fuse.

To fire the shot, slit the end of the fuse half way through for about an inch to expose the powder train, stick the flaming head of a match into the powder and hold it there until the fuse begins to burn. Then run to a place of safety. In about a minute and a half the fuse will burn down into the blasting cap and set it off, which will instantaneously explode the dynamite.

If the right quantity of dynamite has been used, the stump will be blown out of the ground, roots and all [illegible]

[illegible] the charge properly for each [illegible] can be learned only by experience [illegible] size of the stump and its condition [illegible] whether old or green, sound or [illegible] decayed—and the character of the [illegible] whether it is light sand or heavy [illegible] —must be taken into consideration.

For an old but sound stump [illegible] foot and one-half in diameter, in [illegible] close soil, four cartridges of 20 per [illegible] ammonia dynamite probably would [illegible] the proper charge. If the stump [illegible] green, or if the soil is loose or [illegible] the charge should be increased [illegible] ridge or two, or 40 per cent dy[illegible] used.

With a tap-rooted stump it [illegible] ally better to bore a hole into [illegible] with a wood auger and load [illegible] sive in the root itself instead of [illegible] earth. For a large stump with [illegible] lateral roots it is desirable to [illegible] charge under each root and fire [illegible] all at one time. This can be [illegible] by making the primers with [illegible] blasting caps and firing the sh[illegible] or electric blasting machine.

BLOWING OUT BOULDERS

The procedure for blowing [illegible] ders is pretty much the [illegible] blasting stumps but the explosive [illegible] be placed in any one of three [illegible] You may drill a hole for the [illegible] the boulder itself, or if the bo[illegible] partly imbedded in the ground [illegible] punch a hole into the earth un[illegible] boulder close to it so th[illegible] will come in contact with the ro[illegible] first method is called [illegible] and the second "snakeholing."

Third, you may place the [illegible] in a compact heap on top of the [illegible] der and cover it over with [illegible] method of boulder blasting is [illegible] "mudcapping." Fifty or 6[illegible] per [illegible] straight dynamite must be [illegible] mudcapping as it takes a quick [illegible] sive to break the rock before [illegible] of the mudcap.

For blockholing or snakeholing [illegible] per cent ammonia dynamite [illegible] will do satisfactory work [illegible] usually are primed with cap and [illegible] The explosion of the charge [illegible] any one of these three positions [illegible] shatter the boulder into [illegible] easily can be carted away. [illegible] a few sticks of dynamite [illegible] ly get rid of a boulder which [illegible] hindered cultivation for years.

RABBITS AROUND SACRAM[illegible]

The Northern [illegible] Rabbit [illegible] ciation, of which [illegible] Portland, Sacramento [illegible] an organization which [illegible] to further the rabbit ind[illegible] [illegible]

Planning and Developing the Ideal Ranch Home

(Continued From Page Three)

[illegible]. There are the stables and [illegible] incidental to the farm life [illegible]. [illegible] different work areas [illegible] to such life, the approach [illegible] the house service vegetable plot, [illegible] space, house terrace and gar[illegible] any one place may not include [illegible] these units, but it might have [illegible] more than those enumerated, so [illegible] the planning is for a group of [illegible] rather than for a house alone. [illegible] roads to the house should [illegible] inconspicuous as possible unless [illegible] are used as part of a frankly [illegible] scheme in which the road is to [illegible] of the design. For the most [illegible] roads are not attractive, of them[illegible] and should be subordinated to [illegible] picture which is sought. Service [illegible] leading to the house, should be [illegible] planned that they do not cross the [illegible] or pass by the living portions of [illegible] house, so far as it is possible thus [illegible] plan them. The fleeting form of the [illegible] hay or the lumbering hulk of [illegible] farm wagon do not add to the natural [illegible] of the garden nor the quiet [illegible] of a family gathering. These are [illegible] that generally can be avoided by [illegible] thoughtful planning and judicious [illegible] planting.

[illegible] roads should not wander aimlessly [illegible] without reason, although curves are [illegible] pleasant both to contemplate and nego[illegible] when there is reason for them [illegible] when they have been laid out along [illegible] comfortable lines. The service roads [illegible] those leading to the front of the [illegible] house, as a rule can be segregated on [illegible] ranch property. It is generally [illegible] able that this be done.

PROPER RELATION IMPORTANT

In the placing of stables and stock [illegible] there are different considerations [illegible] be taken into account. They should [illegible] be located so that prevailing winds [illegible] odors and flies into the kitchen [illegible] windows of the house. They should [illegible] intercept, from the house windows, [illegible] attractive outlooks that might other[illegible] exist. They should not be visible [illegible] the living portions of the house.

On the other hand the farm buildings [illegible] should be compact in their arrange[illegible] without being crowded. They [illegible] should be orientated to give proper sun[illegible] and ventilation to the stock. They [illegible] should be easily accessible from the [illegible] house and from different portions of [illegible] property. They should, in short, [illegible] efficient functional relation to the [illegible] plan for the entire arrangement of [illegible] property and objects upon it.

The vegetable garden might take a [illegible] more important part in the average [illegible] farm plan than is often the case. [illegible] it should take on larger propor[illegible] than is possible for its city neigh[illegible]. Greater available space and the [illegible] accessibility of horse or tractor power [illegible] make its establishment and main[illegible] tenance possible on a much larger scale. [illegible] is, however, rarely a thing of beauty [illegible] is generally most satisfactory when [illegible] treated as a distinct and separate unit [illegible] the ornamental garden. It should [illegible] as conveniently accessible to the [illegible] kitchen as possible without intruding [illegible] the more intimate units of the [illegible] grounds.

FLOWER GARDEN TREATMENT

Flower gardens, too, are generally [illegible] successful when frankly consid[illegible] as such, with definite areas as[illegible] signed to them. Cut flowers never [illegible] make an attractive feature in a deco[illegible] rative garden, since their foliage is [illegible] weak and the flowers are re[illegible] moved as soon as they attain beauty. [illegible] gardens should be more or less [illegible] and should be frankly consid[illegible] to be for utility purposes. Only [illegible] perennial flower garden has a legit[illegible] place in the decorative scheme, [illegible] even it should be thoughtfully [illegible].

[illegible] service areas, including laun[illegible] drying yard, service court and [illegible] times garage and garage court, [illegible] be near the service portion of the [illegible]. They should not be visible from [illegible] living portions of the dwelling, [illegible] and usually can be screened [illegible] planting, formal hedge, fence or [illegible] but these screens should not in[illegible] important views from the main [illegible] rooms. The architectural style [illegible] house should be reflected in the [illegible] of any of these service buildings, [illegible] the garage or a separate [illegible].

[illegible] RECREATIONAL UNITS

[illegible] houses or frames enter into the [illegible] farm [illegible]. They are [illegible] for special aesthetic [illegible] generally [illegible] subordinated to the general [illegible] in their [illegible] the living portions of the [illegible].

[illegible] desired as [illegible] plan. The [illegible] are [illegible] so that it [illegible] from the [illegible] as a feature in a garden design and also as a place from which to watch tennis or other games, but in such an event this structure terminates the view from within the garden, and the tennis court remains invisible until one has actually stepped within the shelter.

An open lawn is an invaluable adjunct to the successful landscaping of any home. It is well in most plans to devote one single unit to this purpose. It should occur in close relation to the house, to aid in the effect of spaciousness. Such a unit usually is enclosed by trees and shrubs, whether it is formal or informal in arrangement. The informal or naturalistic treatment of such lawn space generally gives the sense of greater freedom and spaciousness than would a formal agreement, thus making it preferable in the average case.

Grass surfaces usually are best when concave so that they rise upward toward their enframing walls. They should always be so graded as to insure drainage away from the house.

The final apportionment of the farm property into the different units for different uses is largely a matter of the owner's desires, since each individual will stress those things in which he has greatest interest. Some effect will demand far greater space for their creation than others, however, so that it becomes a matter of knowledge and judgment and study to create the proper balance.

If the owner will always remember that he is planning a group of units rather than a house alone, a farm group alone, or a vegetable garden alone, he will have mastered the first step toward a pleasing and efficient plan. Proper co-relation, efficiency of functional use and consideration for the simple laws of space composition will bring his home grounds from the pioneer bleakness into the full realization of beauty.

A Good Dairyman Should Be Farmer

(Continued From Page Two)

sters of this breed. "When I have my Guernsey herd once more established, I shall have them tested," he explained, "but I do not think it pays to test first-calf heifers. I am going to weed out the Holsteins, as I like to have just one breed. They look better in the pasture," he added smilingly.

BELIEVES IN TESTING

This producer thinks a large percentage of the cows in the Valley are "hoarders" and is a firm believer in the testing idea, but decries the practice of making a contest out of it, because of the tendency on the part of owners to "force" their animals for the test. "My cows are going to be fed just the same before testing as at any other time," he asserts.

Zummstein, however, proposes to feed his animals a little better than the average Imperial Valley farmer. "I think our heavy producers, at least, need grain," he points out. "Barley can be had here at threshing time for $15 to $20 a ton. We raise milo-maize when rotating our alfalfa fields. My plan is to feed a mixture of corn and barley, ground, which can be used in conjunction with skim milk for the hogs as well."

Alfalfa in this vicinity is good for from four to six years, after which it succumbs to the inroads of Bermuda grass, which is encouraged by winter pasturing.

It is the custom on the Zummstein ranch to renovate or disk the hay fields each fall, and sow barley. This increases the tonnage of the first crop of hay, provides more pasturage and also has a tendency to hold down the Bermuda. Barley as a nurse crop is sown also with first-planting alfalfa. One effect is to reduce danger of bloating.

When a Bermuda-infested alfalfa field is plowed up, it is planted to corn. The stalks are pastured during the summer and fall, and it is sown to hay again the following spring, from 80 to 100 pounds of seed being used. In this way much of the Bermuda is eliminated. Zummstein has raised 50 tons of threshed milo-maize on 35 acres.

THINKS SILO ADVANTAGEOUS

He has no silo hut at present is studying the question with a view to constructing one. "A neighbor has abandoned his silo because he says it doesn't make any extra feed for him," remarked the Brawley dairyman. "However, I look at it this way: A silo is not to *manufacture* new feed but to *keep* good feed.

"This same neighbor sold hay at $12 a ton when he was paying $25 an acre rent for his land, with the result that his cows were half starved. I maintain he could better have afforded to feed such provender, and that the increased milk production would have brought him more money than the hay."

This is typical of the attitude of this thrifty Swiss dairyman towards his business. All manure goes into the fields. Not a ton of hay is sold until the end of the season, and I none then, unless there is no possible way to feed it on the ranch. He does not hesitate to spend money when he can see a good business reason for it, but on the other hand, he allows nothing to go to waste.

For example, a good-sized flock of poultry is maintained at practically no expense, the hens picking up most of their feed and consuming table scraps as well. Sales of eggs go a long way towards paying the grocery bill, while of course the family is always well supplied with poultry products.

Now, as the reader may have guessed, Zummstein is not a front porch farmer. He is usually one of the milking "hands," and sets a fast pace for his two men in doing the day's work. Like most farmers of his nationality, he looks upon agriculture as an opportunity to convert hard labor into dollars and satisfaction.

SUCCEEDS DESPITE HANDICAP

Twenty years ago, coming to California as an immigrant, he could not speak English. For years he worked in dairies in the northern and central parts of the State. His success despite this handicap and the fact that he had no capital except what he earned himself, has won Zummstein the respect of all his acquaintances, while his sunny disposition and broad mindedness have earned him many warm friends.

His capable wife and strong, healthy children enjoy rural life and are spared many of the hardships popularly associated with farming in a comparatively new country. Running water and a power-operated washing machine do much to relieve household cares.

One 11-year-old son is a real "partner" in the business. He helps with the milking and makes pocket money by catching gophers, for which his father pays him a nickel apiece.

The general impression gained by the visitor to this fine dairy farm and home is one of neatness, permanency, stability, happiness and rugged honesty. Some American-born farmers who complain that they are victims of circumstances and cannot get ahead might do well to study Zummstein's career. He is not impressed by stories of those who attribute their failure to Imperial Valley conditions.

"I believe they would have failed even sooner anywhere else," is the way he dismisses this subject.

Subtropical Fruit Industry

THE most complete review of the subtropical fruit industry of Los Angeles County ever compiled is given in the May number of the Los Angeles County Farm Bureau Monthly according to officials of the organization. The policy was adopted several months ago of featuring the major phases of the county agricultural in special industry numbers of the Monthly.

To date the two industries reviewed in this manner have been the deciduous fruit industry and the walnut industry. In these issues not only the importance of the industry was brought out but also the problems confronting them, the agencies working toward their solution and the relation of the industries to the agriculture of the county. Copies of this issue may be secured from W. S. Rosecrans, Editor, Broadway Annex, Hall of Records, Los Angeles.

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Caring For Tractor Magneto

By E. G. M'KIBBEN
Division of Agricultural Engineering, College of Agriculture, University of California

IF a good high-tension magneto is given proper lubrication, protection and adjustments its trips to the repair shop will be few indeed; it will outwear the average tractor engine.

Improper lubrication is probably the greatest source of trouble. It is very common for the operator either to neglect lubrication of the magneto entirely or oil it much too frequently, often with heavy unsuitable oil. An oil hole with some type of dust cover will be found at each end of the magneto. About every 50 to 100 hours of operation, one to three drops of a light mineral oil should be placed in these oil holes. Also, about every 200 hours of operation, it is well to place a small drop of oil on the movable breaker point lever pivot. This is most easily accomplished by the use of a clean straw or tooth pick.

Next to lubrication, cleanliness is probably the most important factor. The magneto should be well protected from dirt, excessive oil and water. A canvas, oil cloth or leather cover does much to give a magneto this needed protection. On one of the latest tractors the magneto is completely enclosed in a dust-proof metal case. At frequent intervals the distributor should be examined, and if dirty, cleaned. A cloth dipped in gasoline should be used for this purpose. Kerosene is not suitable, as it leaves an oil film which collects more dirt.

The breaker box also should be kept free from dirt. The cover should be kept on at all times. Any foreign matter (dirt, oil or water) between the breaker points will cause them to burn and pit badly and sometimes prevent the flow of electric current from the magneto.

These breaker points are the only parts of a well-cared-for magneto which should require adjustment or repair. The tools needed are the gauge and small wrench which came with the magneto, and a small jeweler's or magneto file. Use the file to keep the points square and smooth but do not use it too often or too long. Breaker points are made of a platinum alloy and cost from $3.00 to $8.00 a pair.

Use the wrench to set the maximum opening of the points to correspond to the thickness of the gauge. If you have lost the gauge, find the proper setting for that particular magneto from the catalog or the nearest service station. The proper opening will generally be between 15 and 20 thousandths of an inch. This is about twice the thickness of a U. S. postal card.

There are a few precautions which should be kept in mind while handling a magneto. It should never be subjected to high temperatures or severe hammering. If one of the high tension cables is removed from a spark plug while the engine is running it should be immediately grounded; that is, placed against some part of the engine. Allowing the cable to hang in mid-air forces the high tension current across the safety gap inside the magneto and places an undesirably high strain on the windings of the armature.

A magneto properly cared for not only means a smaller repair bill but also goes a long way towards providing ease of starting satisfactory operation and increased dependability of the entire tractor unit.

DON'T WASH DIRTY EGGS

Washing eggs injures their keeping quality, therefore don't do it. Eggs are an exception to the rule that farm produce should be marketed in a clean, attractive condition. Keep as many soiled eggs as are needed for home use. Better still, keep the poultry house and nests clean, gather eggs daily and don't let the hens out on muddy days until the afternoon then there won't be many dirty eggs.

A Stitch in Time

Incorrect lubrication is probably the most potent source of magneto trouble. Above are indicated parts needing most frequent attention.

Ripe Fruit Is the Right Fruit—Why

ABOUT 25 years ago I considered green apples a rare delicacy. Cherries about the size of the average garden pea, showing their first blush of color, were also tempting.

Today I prefer my apples, cherries and other fruits ripe. Why? Experience has taught me there is more enjoyment to be secured and less discomfort forthcoming when fruit is eaten at its proper state of maturity. Doubtless, my own experience in this regard has not been different from most other individuals who grew up in the days of the family orchard. It is indeed a pleasure to pick and eat directly from the tree a big, red, ripe sweet, juicy peach or plum.

The difference in quality between a green and a ripe fruit is due to its chemical composition. Growing fruit contains at first a considerable percentage of starch and acid. With increase in size and as it nears maturity, the flesh softens, the starch changes into sugar, and the percentage of acid diminishes. Likewise, there is a decrease or entire disappearance of the tannin (the puckery principle) and the addition of minute quantities of the flavoring oils or esters. These flavoring oils, without which the fruit is insipid, are late in developing and hence, in order to secure the highest dessert quality, most fruits should not be harvested until the full characteristic flavor has developed.

When fruit is to be used for home or local consumption, it has long been the customary practice to allow it to attain its color and flavor before picking. Canneries likewise advertise the fact that their product is picked and canned when in its most "perfect state." Ripe fruit undoubtedly does produce a better and higher quality canned product and incidentally saves the canner a considerable amount of his sugar bill.

Admitting, as we all do, the superiority of the California canned product, we are being told by consumers in the Eastern markets that the fresh fruit, which they are asked to purchase is green, wilted, tough and tasteless. While little cre[illegible] [illegible] ... [illegible] experience ... Such a condition ... [illegible]

It has been assumed that fruit started to ... even when picked [illegible] ... would ... [illegible] ... tion ... condition. Where fruit is prop[illegible] vested the ... process will ... though slow ... under the comp[illegible] low temperatures existing in a re[illegible] ator car. However, stone fruits and pears ... temperature of ... grees F. ... there are visible ... of the ripening process having ... as a rule ... never develop either ... or flavor. A most convincing ... this is to place ... a basket of ... picked for Eastern shipment in ... own ice box and then some more ... days or two weeks later remove ... and place on the table as a ... appetizer ... the question, "Why ripe fruit?"

To ship fresh fruit at the ... reaches its highest dessert quality ... of course, impossible. Such ... would arrive ... overripe, ... able condition. The problem then ... determine ... what is the ... stage of ripeness which different ... can attain before being harvested ... yet arrive ... in prime eating condition. The ... many but ... factors connected ... the ... of ... cannot be ... However ... believes ... and ... make ... Eastern ... of size ... and quality ... taste ... make them want ... F. W. ALLEN, Division of Pomology, University of California.

Ants Bother Bees—Kill 'Em Quick!

I HAVE a few colonies of bees near Woodlake (Tulare county) troubled with black ants, which seem to be living in side the hives. I don't know whether or not they are eating the larvae but should like to get rid of them. Is there a way of doing this without killing the bees?

The Western Honey Association ... located at Woodlake. There are a great many orange groves near ... the ... favorable for a good honey crop this ... Bixby's Bee Notes are read with much interest and profit. ... of the kind of material was published as there is great need of authentic information about apiculture.—W. E. STEWART, Tulare County.

Ants frequently are a serious nuisance about apiaries, annoying bees and occasionally causing serious loss of colonies. I know a queen breeder who last year moved a yard of nuclei to a new location which was swarming with Argentine ants. In two weeks he had lost over 50 colonies, with their young queens. Feeding nuclei seemed to aggravate the ferocity of the ants.

The best and cheapest remedy for ants about the apiary is probably kerosene or distillate. "Slop distillate" is the handiest. Save the waste oil from your crankcase and dilute it with kerosene or distillate. Raise up every hive and apply the oil with a brush on to every ants nest ... sign of one. Don't put any oil in front of the entrance ... bees greatly dislike its odor. Be especially careful not to apply oil inside the hive. Under the hive stand or the cleats is a favorite place for ant nests.

Argentine ants—the little black fellows who travel along a trail four or five abreast—are very apt to nest inside the hive under the ends of the frames. When disturbed each one grabs an ant larva in its jaws and scuttles ... those ... gasoline ... small oil ... the hive ... so, until the fumes evaporate ... bees ... injured.

Some ... ant remedies ... but ... useless ... natural food the secretion ... aphis ... factured ... regard ... As long ... len are ... they ... even when ...

A small ... the Argentine ... in ... the hives ... It is often ... bees can ... is the ... for the ... not honey. These are ... the ... Along ... dry spell ... can see ... with ... nests ... violent ... of ants ... bee ... While ... lation ... syrup ... formula ... areas ... persistent ... for all ... —[illegible]

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Paying the Price of Poultry Success in Novato

Mistake and Hard Work Bridges Were Crossed Before the Highway to Profitable Production Was Found

By O. H. BARNHILL

WHEN Otto Gerhardt went into the poultry business 11 years ago he had $750 in cash and a willingness to work. He had practically no technical knowledge of that particular branch of farming, intending to "learn to do by doing."

Realizing that his capital was inadequate to build and equip an egg plant, he formed a working—note word—partnership with John Burk, who had more money than Gerhardt but was equally short on feathered information.

The partners located in the beautiful Novato Valley, Marin County, rented a small chicken ranch and went to work. They were offered a large number of 2-months-old chicks at 20 cents each. It looked like a bargain, therefore, they snapped it up.

This initial purchase of feathered stock was Mistake No. 1, because the chicks proved to nothing but weak little runts. The building in which they were housed was unwarmed and improperly constructed, which constituted Mistake No. 2. The chicks piled up in the cold corners and died in such large numbers that feathered funerals were at first the most prominent feature of the new poultry project.

Mistake No. 3 consisted in buying another bunch of baby chicks which were not what they should be. They were brooded by the aid of a poorly made hover—Mistake No. 4—and the pullets began laying at the early age of four months and eleven days.

"But they laid only one egg and then quit until December," ruefully related Gerhardt. "They didn't come from a heavy laying strain of hens, as we afterwards learned. Next we bought a bunch of old hens, which did everything that hens should do—except lay eggs. That was Mistake No. 5. After that we made so many bad moves that we soon lost count of them."

During these early days the partners took turns in working for neighbors, in order to make a living and support their poultry plant until the time should come when it would support them. Realizing he had much to learn about the business, Gerhardt labored for other poultrymen, carefully observing their methods.

PARTNERS SEPARATE

Then at night he and his partner would discuss various ways of breeding and feeding hens.

The purchase of first class chicks from a reputable hatchery was the first move that led the partners to the highway of success. They succeeded in raising most of the pullets, having fixed up the house and brooder house until both were in good shape, and were rewarded by more satisfactory egg production.

After six years, during which time they had taken their poultry project from a losing basis, the partners agreed to dissolve their business relations. Fate decided that the German member of the entente should sell out. He received $4000 for his share of the business, which represented a very satisfactory profit, considering the difficulties which had been overcome.

Investing his capital in Liberty bonds and motgages, Gerhardt worked for wages a year, at the end of which time he decided that if he ever was going to accumulate any more property he would have to go into business for himself. Accordingly, he bought ten acres of ground suited to poultry farming and began to build up a poultry plant.

FIVE YEARS' PROGRESS

Profiting by past mistakes, buildings of the most approved type were erected, a successful system of brooding chicks installed and heavy laying stock purchased. An abundance of green feed was provided and the grain and mash rations mixed according to the best formula.

That was four or five years ago. The Gerhardt poultry plant now is considered one of the best arranged and managed in Novato Valley. From knowing practically nothing of egg production, the owner has come to be considered one of the poultry authorities of Marin County, being a prominent and active member of the poultry committee of the Farm Bureau.

There are three laying houses, each 120 feet long and 20 feet wide, designed to accommodate about 3800 hens, which is the number kept at present. The buildings are set north and south, facing the east, to afford protection from the cold winds which sometimes blow from the nearby ocean.

There are no partitions to bother the caretaker who is enabled to distribute supplies and remove litter in record time. A knee-high partition separates the straw-covered scratching floor from the roosting section. The roosting poles are laid upon swinging 2 by 4's and are easily pushed to one side for the weekly cleanout.

NO DISINFECTANTS USED

The nests are made of five-gallon oil cans set on end, close together, in a continuous row along the east wall, waist high. The upper half of the front side of each can is cut out and rolled down, to permit the entrance of one hen—they never pile up atop of each other in these small tin nests.

The mash boxes have sloping roofs surmounted by a narrow board supported at each end by a nail, upon which it easily turns, dumping off the ambitious Biddy who would perch there and possibly befoul the box.

Perhaps the most striking feature of Gerhardt's poultry practice is the fact that he uses no insecticide and never sprays or paints his roosts, nests or the interior of his laying houses with a liquid preparation. All he uses is lime, which is dusted onto the roost poles whenever the droppings are cleaned out.

Lice and mites never bother the hens, apparently. County Agent Boissevain skeptically examined several, but could find no parasitic infestation. The hens dust themselves beneath the eaves, which project for three feet from the east sides of the buildings. A burlap curtain rolls down over the netting protected upper half of the east wall, to shut out driving rain or chilling fogs.

Kale and barley furnish green feed, the latter being planted alternately in the yards. Much use is made of sprouted barley, which is soaked in water 24 hours and fed when the sprout is one-eighth inch long.

Gerhardt believes it pays to buy feed in bulk and mix it at home. To 500 pounds of mill run he adds 400 pounds of barley meal, 50 pounds of charcoal, 100 pounds of ground bone and 180 pounds of beef scrap. In addition to this dry mash, he feeds sprouted barley morning, noon and night in the yards, while in the evening wheat is scattered inside of the laying houses.

The brooder house is 80 by 20 feet, divided into four rooms, the two inner apartments being heated with giant hovers and the outer rooms used for cooling off the chicks. Two thousand chicks are brooded in each unit and nearly the standard percentage of pullets, 40, brought to laying age. The chicks are procured from Farm Bureau accredited hatcheries.

"A man starting in the chicken business now has things easy, compared to what my partner and I had to contend with eleven years ago," points out Gerhardt. "Poultry practice has been standardized and with the help of the Extension Service and the Farm Bureau a beginner need not go wrong. Poultry equipment and feeds have been improved and—most important of all—heavy laying strains of hens developed.

"But, remember this: making real money in the poultry business means hard work and lots of it. Make no mistake about that. If a man is not willing to 'dig in and dig out' he might as well stay away from chickens. Of course, if he has plenty of capital to start with and can afford all conveniences, that will help a lot, but still he will have to work hard, early and late, to make a real success."

In addition to his chicken houses, Gerhardt has built a large feed barn and erected an elevated water tank over a never-failing, shallow well, which not only furnishes his feathered stock with an abundance of pure water, but also is used to carry the kale through dry seasons. He has planted a small vineyard and otherwise improved his place.

Two years ago, feeling the need of a helpmate, this rising poultryman took unto himself a wife, who not only looks after the housework, but at times renders almost as much assistance with the chickens as another "hand." A first-class market truck is used as a passenger auto when needed and a comfortable residence is being planned.

SELLS THROUGH ASSOCIATION

"Don't forget to say that I market my eggs through the association," cautioned the Novato egg producer. "And tell about that trap door, which lets the chicken out in the morning when I don't like getting up early."

The door mentioned is lifted by a coiled spring outside and is released by a stick of wood, balanced on the sill and tripped off by the weight of hens anxious to get out in the sunshine.

No definite figures regarding net profits was obtained, but it is estimated that an average hen will pay at least $1 a year and that Gerhardt could bank $10,000 if he were to sell his stock and farm.

The tank above provides a pressure water supply for temporary house beneath. A permanent residence is to be constructed soon with poultry profits. "Pay as you go," is Otto Gerhardt's rule.

In the absence of costly labor-saving equipment, the "armstrong" method is used in caring for this big flock of White Leghorn hens. Mrs. Gerhardt renders valuable assistance.

The owner of this successful farm learned the rules of the poultry game by traveling the hard road of experience. Other would-be egg producers should profit by his example: study, work and win.

Semi-Tropical FRUITS

This large cherimoya fruit was grown by W. H. Sallmon at Chula Vista (San Diego County). Single specimens sometimes attain a weight of a pound or more.

Plant Cherimoyas for Pleasure, Profit

AMONG semi-tropical fruits, none is more delicious than the cherimoya. The accompanying illustration shows a fruit weighing about a pound and a half, grown by W. H. Sallmon at Chula Vista (San Diego County).

The flesh is white, of a soft, creamy consistency, very sweet and refreshing, flavored as with a blending of pineapples and bananas. Embedded in the flesh are numerous smooth, black seeds about the size of grains of corn.

The cherimoya belongs to the amona or custard apple group, and is a native of the elevated, dry, semi-tropical climate of Ecuador and Peru. It has been highly prized by the natives since ancient times.

The tree is semi-deciduous, dropping its leaves just before the new leaves appear in spring. It is fairly resistant to cold and may be grown throughout the coast district wherever the lemon is grown. The tree attains about the same size as the orange and is comparatively free from pests. It requires a deep, fairly rich soil and about the same amount of irrigation water as the lemon.

The cherimoya was introduced into California many years ago but until recently only seedlings were grown. Many of these have been unsatisfactory on account of shy bearing.

Within recent years several good, heavy bearing seedlings have been propagated by budding and offered to the trade by enterprising nurserymen. A few small commercial plantings have been made. The trees come into bearing at four or five years of age, and the fruit can be shipped to distant markets with little trouble.

The fruit is harvested when it assumes a yellowish cast in March, April and May and after being stored for a week or ten days becomes soft and ready to eat.

The chief difficulty so far encountered has been misshapen fruits due to imperfect pollination. Until more is known about the pollination requirements several trees of different varieties should be planted together.

Now that budded trees of good varieties are available the cherimoya should be included in all home garden collections where severe frost is not encountered.—J. ELIOT COIT.

Top-work Loquats

WHILE many old seedling loquat trees have grown to large proportions and may be of some value for shade and ornamental purposes, they may be made to yield profitable crops of fine fruit if top-worked to good commercial varieties such as the Thales, or Advance.

Top-working can be done by bark grafting in spring or early summer. Cions with at least two good buds should be selected from well-matured wood, prepared with a long, slanting cut at the base and pushed carefully into a slit in the bark of the stock until they begin to split their own way down and are thus firmly placed.

The head of the stock then is wrapped tightly with waxed cloth and all exposed wood on stock and cion coated with liquid grafting wax as a protection from drying out.—J. ELIOT COIT.

Large seedling loquat trees bordering a driveway near Niles, California. At left is shown a typical cluster of loquat fruits.

Sapote trees in full bearing near Duarte, California. In some locations fruit may be found on the trees the year around, although the usual season is from October to May.

The White Sapote—a Neglected Fruit

THE white sapote is well worthy of much more general planting in home grounds collections. It is comparatively hardy and will endure fully as much frost as the orange—if not more. While it bears best with some irrigation, it is not seriously injured by lack of water, after once well started.

The tree is not subject to as many pests as citrus trees, and although the black scale is sometimes found on it, the effects are not serious. The ability to endure neglect and still grow into an ornamental and fruitful tree makes the sapote valuable as an addition to any garden.

This fruit is a native of the high tablelands of Mexico and Central America. It was introduced into California many years ago and seedling trees have been fruiting for years in various parts of California. It does equally well in the warm interior and nearer the coast.

The best varieties are very prolific, the fruits being about the size of small apples, yellowish green in color, with thin skin, containing from three to five rather large oval seeds.

The flesh is yellowish in color, of melting texture, and sweet flavor. Some varieties have a slightly bitter aftertaste, others not.

The flesh contains about 20 per cent of sugar and very little acid. Persons who like acid fruits like the orange are likely to think the sapote insipid. Others are very fond of the fruit. Children as a rule like sapotes and may be depended upon to harvest the crop as fast as it matures.

The season of ripening is fall and winter, though some trees continue to ripen fruit well into May, and in some locations ripe fruit may be found on the trees throughout the year. The flavor of the fruit is best if it is picked when mature and ripened off the tree.

The tree is an evergreen, with five parted leaves, and reaches the size of a large seedling orange tree. It bears fruit when five or six years of age. Some seedlings bear very small fruit with large seeds and little flesh, and for this reason it is best to plant budded trees. The white sapote is a very interesting and worthy addition to any home garden collection of semi-tropical fruits.—J. ELIOT COIT.

Fruit of the sapote. It is very sweet; in fact, the sugar content runs as high as 20 per cent.

Seeds of the white sapote. This fruit tree deserves wider planting in California. It is quite resistant to frost.

ORCHARD and FARM

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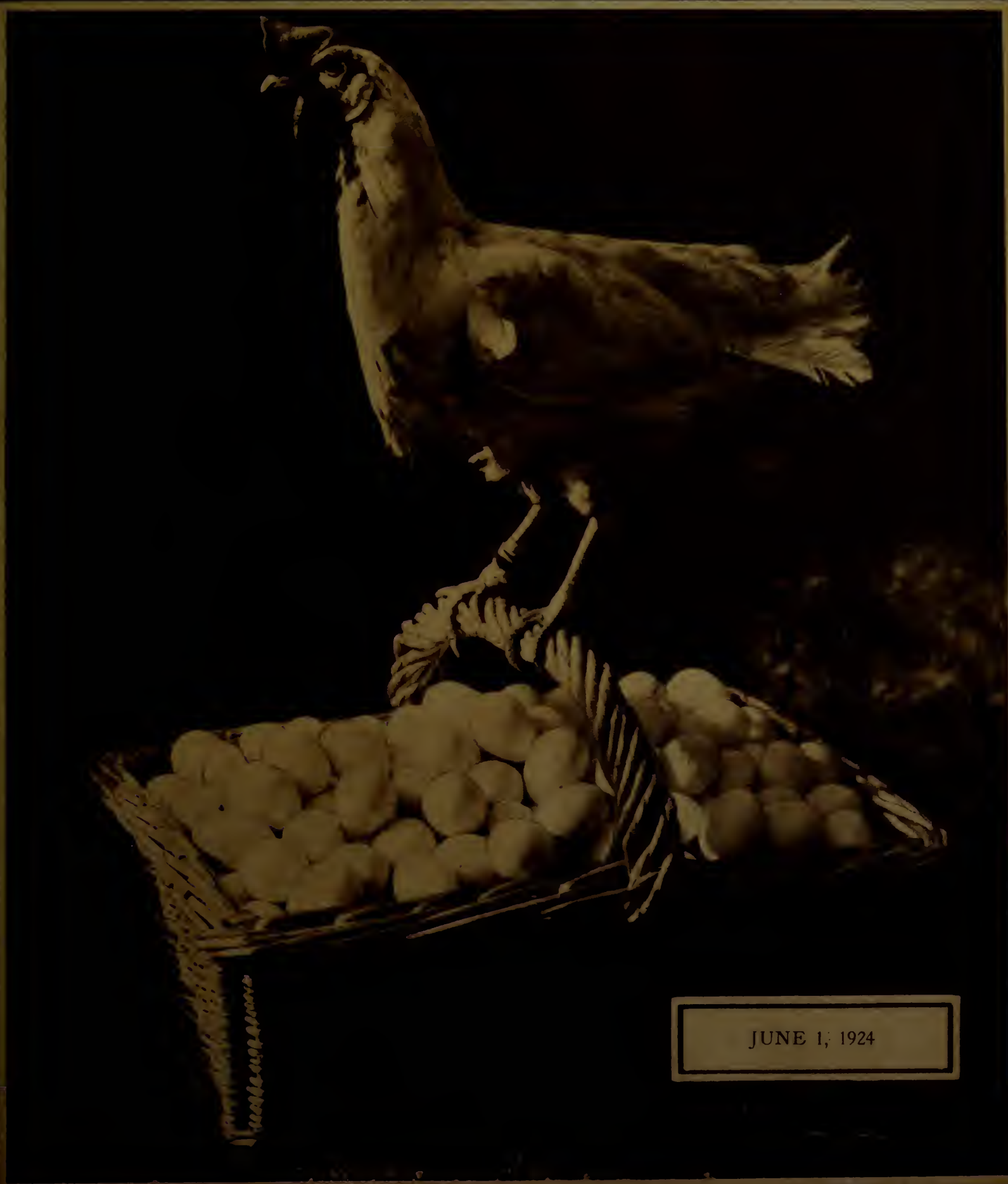

JUNE 1, 1924

PIONEER LADY—LAID 294 EGGS IN 365 CONSECUTIVE DAYS

Gone Forever the Romantic Days of the Dons

California's New Order Exemplified by Intensive Development in Napa Valley

THE patriarchal country of California's rural pioneers, who counted their cattle on a hundred hills and grew grain extensively rather than intensively, is passing, never to return. The old order is changing. Twentieth century agriculture demands that a farm, to be profitable, must be organized along the lines of a modern factory, and efficiently managed. —*Editor.*

THE development work being done on Oak Knoll Ranch, one of the most famous country properties in the North Bay District, throws light upon the complicated problem of making California's large farms profitable. Changed conditions demand a different system of management. Livestock grazing and grain growing no longer will pay interest on land values.

Fruit points the way to higher per-

Oak trees are a distinctive feature of this magnificent country estate. In case the property is subdivided they will add materially to residential values.

acre returns, but the simple conversion of meadows and grain fields into orchards does not always improve the situation. Fruit growing is a highly specialized industry and with low prices and uncertain market conditions, the most expert management is necessary to render this branch of farming a paying proposition.

Let us see how the owners of Oak Knoll are finding their financial salvation. Leaving the highway or electric line at Oak Knoll Station, a few miles north of Napa, the springtime visitor drives between extensive prune orchards, fragrant with nectar-laden blossoms, then crosses a 40-acre wheat field, where several hundred sheep are graz-

This artistic passenger station on the interurban railway between Napa and Calistoga marks the ranch entrance. Note locust trees and glimpse of paved highway.

ing or lying beneath tall, umbrageous oak trees, which give the grain field the appearance of a beautiful park.

The house is a typical California country mansion, set upon an oak knoll in the center of a magnificent private park, where a great variety of trees, shrubs and flowers are growing. Life-size figures carved in marble gleam snow-white through glossy green leaves of magnolia and orange trees, while stately date palms guard the entrance to the residence. The latter is a massive white structure, with a four-story tower, and is the home of H. C. Melone, ranch superintendent and part owner. Mr. Melone's mother, Mrs. Drury Melone, also makes her home at Oak Knoll. She and her daughter, Mrs. Ethel M. Brown of San Francisco, are part owners of the farm.

Melone is a very busy man, having other interests besides the management of this 2200-acre ranch. He enjoys showing the magnificent property to visitors, however, and explaining the improvement and development work being done.

The ranch is a veritable little kingdom in itself, an agricultural empire in miniature. There are vast, level fields of fertile soil and green, wooded hills, through which flows a creek capable of irrigating 3000 acres of land, according to Government measurements.

The general plan is to make fruit the main money crop. A portion of the land is devoted to grain, while the hills are utilized for sheep pasture.

The sheep are a cross between Shropshire and Merino. A 100 per cent lamb crop was raised the past winter, a young wheat field furnishing good pasture. The dog and coyote problem was solved by penning the sheep at night into a two-acre corral, made of six-foot woven wire fence, near the house. Two corrals are used alternately, nursery stock being grown in one while the other is being fertilized.

The dairy has been discontinued, but will be reinstated when a competent man can be found to manage this branch of the business. The dairyman also will be expected to raise hogs and poultry.

At present there is a considerable acreage in bearing prune orchards. The contrast between the older and newer plantings affords a striking illustration of the progress being made in growing fruit trees. In the young orchards the trees are set far apart and have low, well-formed tops, while the ground is deeply and thoroughly cultivated.

There are gang plows, double disks, clod mashers and chisels. The latter runs a few inches deeper than the disk, breaking up any possible plow pan. Two wheel-type tractors are used, a "12-20" and a "15-27." New-style, wedge-shaped lugs or grousers prevent the drive wheels from slipping, being considered a great improvement on the old-style spade-shaped lugs. The floats are made of three-inch planks, reinforced with metal strips along the lower edge, one for cutting clods and the other for mashing them.

A dozen horses are kept on the place and some good colts raised, but the equine equipment is being sold off, as tractors are considered more profitable.

"The main points in favor of tractors, in our experience," explains Malone, "are economy and quickness of operation. With horses it is impossible to get ground cultivated while in the proper condition. Men who drive teams waste a great deal of time resting horses and tinkering with harness.

"We paid tractor drivers 50 cents a day more than horse drivers during the busy season, but now they receive the same wages. My son and the foreman's son drive our tractors efficiently." In order to save time and machinery, a tractor shed has been erected in each large field. Each shed is to be equipped with an elevated distillate tank, to which a dealer has agreed to deliver oil direct. A year's contract, made last summer, saves 3 cents a gallon on present prices. Water is to be piped to each shed, not only for radiator filling but for clarifier cleaning also, the latter operation being considered by Melone the most important in the care of a tractor.

Tractor sheds are boarded up on the south, to keep out fogs, but are left open on the other sides, as boarding up the building all around would be making a fire trap, it is thought. A woven wire gate, with padlock, is to be put in front of that portion of the shed containing supplies.

An old 70-acre Alexander apple orchard is sublet for cash to a Chinaman who each year sells about five carloads —450 boxes to the car—of first-class fruit and a large quantity of second-grade apples. The main picking is made the first week of July and the car lots send to Texas and Montana.

L. S. Eddington is beginning his second 10-year lease of Oak Knoll ranch. The lease provides that the gross income is to be equally divided between owner and rentor, the latter doing the work according to plans furnished by the Melone estate and the latter paying all other expenses. This form of lease is widely used in the East, where it is proving very satisfactory.

The lease was renewed for another decade upon condition that Eddington plant a 140-acre orchard. This was done last winter and is an example of how such work is done when every detail of the project is carefully planned beforehand. In the first place, several cross fences were removed, five fields being thrown together to form one large orchard.

"Long rows cut the cost of tractor cultivation to *(Continued on Page 9)*

Manager Melone is one of the busiest men in Napa County. He is an ardent supporter of co-operative marketing and has other important interests.

Tractors play an important part in the operation of this big farm factory. Many partition fences have been removed to save land and expense in cultivating.

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
JUNE 1, 1924

Grow Berries, Vegetables Between the Tree Rows

Practical Suggestions for Making the Young Orchard Pay for Its Own Raising by Intercropping—Moisture and Fertility Important

By F. W. ALLEN

Division of Pomology, University of California

AT a farmer's institute meeting several years ago in one of the fruit sections of the State of Washington, where there were large plantings of young orchards, this question was asked the growers:

"While practicing clean cultivation in your young orchards throughout the season, how do you make them pay?"

Since the writer has always been a student of the economics of fruit growing this question was one of interest. The orchards had all been well cared for, but it was very evident that they were not yet furnishing any material returns. After slight hesitation one grower replied rather timidly:

"We work for the company."

Finding that most of the orchards were company holdings, it was taken for granted that perhaps these growers received their "returns" once a month. The average fruit grower, however, does not work for a company but for himself and when planting an orchard eagerly anticipates the time when it will yield some profit.

Many growers have demonstrated that this can be accomplished the same season the trees are set. Intercrops have brought in cash and enabled the fruit grower in most cases to make a very good living while the orchard is coming into bearing. With young trees set 25 to 60 feet apart, why should all the ground between the rows lie idle? No reason at all provided.

First, it is clearly borne in mind that when an orchard is planted the trees are the main crop. Planting anything else on the land is really a system of double cropping. The first question, therefore, for the orchardist to ask himself is whether the soil is sufficiently fertile and contains enough moisture to grow two crops.

As it will be some time before the roots of the young trees range very far for food material it might seem that during the first few years they could be disregarded. The time is coming, however, when the root systems will meet and interlock between the rows and then they may need all the plant food which the soil previously possessed.

Even on the best of land a serious mistake can be made if no effort is put forth to return the fertility removed by the intercrop. Manure should be applied annually or else some portion of the crop returned to the land.

In most fruit sections of this State where little rain falls during the growing season the available water supply is of even greater importance than soil fertility. There must be sufficient moisture in the soil or the intercrop will rob the young trees. With a lack of summer rain an abundance of irrigation water is a necessity.

Possessing good soil and an adequate water supply, the next item of importance to consider is the demand for the crop after it is produced. It must be one for which there is a good cash price upon the market or else one which can be utilized on the place in connection with some form of livestock.

Intercrops may be divided into annual perennial crops, cultivated, and grain or hay crops, and small fruits. While in the Northwest alfalfa is becoming very popular in bearing orchards, it is still generally considered advisable that young trees should have some cultivation; hence the growing of some cultivated crop is to be recommended. In growing a crop which demands good tillage in order to secure normal returns, the orchard may be given better care than it would otherwise receive and thus the trees may actually be benefited by the practice.

For the same reason that cultivated crops are to be recommended, small grain crops should be discriminated against. They allow for little or no cultivation and compete for plant food and moisture at a time when most needed by the young trees.

Where one is located in a truck-growing section or near a large market where there is a good demand for vegetables, such crops as potatoes, tomatoes, cabbage,

(Cont. on Page 16)

Intercrop of Blackeye Beans in a Los Angeles County Walnut Orchard

Organization as Master Key to Final Co-operative Success

"Make the Member a Working Partner," Advises H. W. Wrightson, Farm Bureau Federation Official

By O. H. BARNHILL

ONE of the main reasons why some farmers' co-operatives do not function more effectively is because members have had so little contact with the management, in the opinion of H. W. Wrightson, who is "proving his faith by his works." Following a striking successful membership campaign which he engineered for the State Farm Bureau Federation last year, this willing worker was drafted by the Sun Maid Raisin Growers to help educate the 16,500 members of that big marketing association. He wasn't given any official title but his particular job is to tie the members and officers together—and keep the chain from breaking.

H. W. WRIGHTSON

Attempting to run a farmers' society without full knowledge on the part of [illegible] upon which [illegible] co-operative association [illegible] according to [illegible]

[illegible] way that is [illegible] "This is the fact [illegible] an organization [illegible] statement of all [illegible] dealing generally [illegible] Am[illegible] [illegible] Farm Bureau [illegible] Often [illegible]

"The best plan is not only to keep members fully informed regarding the workings of their association, but also to give them a share—as far as possible—in its operation. This leads to more intelligent management, promotes mutual confidence between officers and members and results in satisfaction and success all along the line."

When Wrightson conducted the Farm Bureau membership campaign last year he spent 51 weeks getting ready for the battle, which lasted just one week. The way the forces of this great organization, which covers 41 California counties, were marshaled for the short, successful conflict affords a good lesson in co-operative organization.

"We discarded the plan of hiring paid solicitors to secure new members and renewals," explained Wrightson. Not only is this method expensive, but we farmers very properly resent being told by outsiders where to 'head in.' Furthermore, we do not feel the same confidence in strangers which we place in a personal friend or neighbor.

COLLECTION LESSONS LEARNED

"One of the biggest objections to this method was the fact that paid workers who naturally were interested in getting as many memberships as possible would make promises about what the Farm Bureau was going to do, promises which were impossible of fulfillment. When the solicitor is a man who belongs in the community it is different, because such a man is apt to be careful about making to his neighbors promises which may not be fulfilled.

"Another plan which was found impractical was the collection of membership dues through banks. It was thought that by requiring members to sign an agreement to permit their dues to be collected through banks for five years it would be possible to eliminate most of the work of annual membership drives. This plan works fairly well for one year, but after that it leads to endless confusion and dissatisfaction. Farmers transfer their accounts to other banks, change their addresses and sometimes move to other counties, or leave the State.

PURPOSES OF SOLICITATION

"Collecting dues is only one of the purposes of the annual membership campaign, which is chiefly valuable because it affords a means of maintaining personal contact between Farm Bureau workers and the rank and file of the organization. A certain percentage of members seldom or ever attend meetings and therefore get out of touch with what is being done. A talk with another member, who is a live wire and well informed regarding the work, is necessary to maintain morale and effective operation."

The vice president went from county to county, sometimes spending weeks in one district, organizing for the campaign. Each county had its organization committee and each center its local committee. The county officers met with local workers, who were made familiar with the plan of work.

The center committees then held meetings and mapped out their local campaigns. Each worker was given a certain number of persons to see, with all available information about present and prospective members. By thus dividing and subdividing the work, it was arranged that each solicitor had little to do and of course served without pay.

FINISHES RECORD CAMPAIGN

Wrightson not only increased the Farm Bureau membership 4000, in the face of discouraging farm conditions, but returned $1600 of the campaign fund. The total expense of the work amounted to only 35 cents per member.

Finishing his active Farm Bureau work last September, afterwards becoming what he laughingly calls "a real vice president," Wrightson was invited by the Sun Maid Raisin Growers to undertake the work of maintaining closer contact between management and members. Raisin territory now is divided into 29 districts: one on either side of the Sacramento River, one each in Stanislaus, Merced, Madera and Kern counties, balance in Fresno, Tulare and Kings counties.

Each district is represented by a committeeman, who collectively constitute the Advisory Council of the organization. At these gatherings the officers of the association make a report of their activities and furnish complete information regarding the raisin business.

After taking

(Continued on Page 10)

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY
By THE EDITOR

WHY SUPPORT THE FARM BUREAU?—The only fair way to judge any organization is by its actual accomplishments. On this basis the Farm Bureau should stand "ace high" with all friends of agriculture.

There is a tendency to regard "associations" of all kinds as nonproductive, parasitic organizations, supported by an unnecessary "tax" in the form of membership fees. And it is true that in our zeal as "joiners," we American people have contributed millions to nonessential and even fraudulent "movements."

But not by any stretch of the imagination can any branch of the Farm Bureau be placed in this category! It is the one big organization controlled by the farmers themselves, yet semi-official in its nature, linked with educational institutions and the United States Government itself. Conversely, it is the only one that reaches, through its smaller units, the individual on the land and his family.

MEASURED IN TERMS OF MONEY—Some of the advantages that accrue to the farmers through Farm Bureau activities cannot be measured in terms of money. Others, however, have a definite cash value.

For example, as pointed out in a recent article published in this magazine, the Utility Department of the State Federation alone has saved enough money for the farmers in the past two or three years to pay its total expenses, plus all the membership fees in the county and State Farm Bureaus for 50 years!

Such activities as promoting favorable legislation and securing reduced railroad and power rates cannot be undertaken by individuals. They call for the power of combined forces under intelligent and forceful leadership. This is just one of many services the Farm Bureau supplies.

WHAT ONE COUNTY HAS DONE—In commercial activities Tulare County has gone farther, perhaps, than any other in this State. This seems to be a line of endeavor which depends for its success largely upon capable leadership. That Tulare has this attribute is indicated by the achievements of the marketing department.

Purchases of commodities were pooled to the extent of nearly $90,000. Approximately $350,000 worth of hogs were sold at auction. A 2-cent reduction in price of gasoline was secured for members. Automobile and other supplies were purchased at reduced prices.

Some members feel the Farm Bureau should refrain from commercial activities; yet Tulare, apparently by reason of its success along this line, is said to have the largest membership in the State.

ONE VOTE AS GOOD AS ANOTHER—Yes, there are differences of opinion as to the functions and policies of the Farm Bureau, and, of course, the organization has made mistakes; otherwise it would not be human in its make up.

But critics should remember that is just what its members make it—nothing more, nothing less. The officers are elected, important policies voted upon. And today the Farm Bureau is such a powerful factor in county, state and national life that every farmer owes it to himself to take a hand in its management. By all means, let us all be identified with the Farm Bureau. It is the farmers' most effective weapon and should be his official voice!

WHAT'S NEW? Keeping Abreast of Agricultural Progress

Will Issue Ram Booklet

BECAUSE quarantine regulations prevent the holding of a ram sale this year, the California Wool Growers' Association will issue a booklet in which will be listed all rams in the State reported for sale. This booklet will be furnished to all members, in order to facilitate the distribution of breeding stock.

Plowing Up Potato Fields

LOS ANGELES COUNTY potato fields generally are in poor condition, some fields having been plowed up because of unprofitable yields, according to F. H. Ernst, of the Extension Service. Poor stands seem to be associated chiefly with ordinary local seed. Fields from certified seed show much better stands. Spindly sprout, mosaic and rhizoctonia are unusually prevalent; also considerable necrotic injury.

Raising Mushrooms in Brewery

THE former Santa Cruz brewery now is being used to grow mushrooms and a greater profit is anticipated from the production of edible fungi than was formerly earned manufacturing intoxicating beverages. In some of the Coast counties a great many wild mushrooms are gathered and sold at good prices, one picker near Ignacio (Marin County) having made in one season nearly $100 by spare time work. Dried mushrooms are shipped into California from France.

Children Learning Farming

F. H. ERNST, the enterprising leader of boys' and girls' club work in Los Angeles County, reports the following active organizations:

Egg production club at Arcadia, East San Fernando Valley and Owensmouth High School, South Santa Anita vegetable club, San Fernando and Downey calf clubs.

None of the members' calves have been destroyed by the foot-and-mouth disease and every precaution is being taken to prevent infection.

Very Short Wheat Crop

ONLY one-fourth as much wheat will be harvested in California this year as last, according to State Department of Agriculture forecasts. Adverse climatic conditions in April will result in more than half the acreage being abandoned, it is predicted. This will amount to 373,000 acres, leaving 318,000 acres to be harvested. The estimated production is 4,254,000 bushels, compared to 16,157,000 last year. Higher wheat prices are expected to rule locally, rendering early buying of feed supplies by poultrymen advisable.

Selling Raisins in Japan

THERE is no good reason why 10,000 tons of raisins cannot be sold in Japan during the next two years, according to Ralph P. Merritt, president Sun Maid Raisin Growers, who recently returned from a trip to the Orient.

In order to develop a large market for raisins in Japan it will be necessary to change the eating habits of the people and cultivate a taste for the Sun Maid product. Raisin bread, into which go most of the raisins now sold, is unknown in Japan, where baking ovens are not used. Merritt persuaded a large food dealer to buy ovens and teach his countrymen how to bake raisin bread.

Fruitmen's Summer School

THE primary purpose of the summer session courses in subtropical horticulture offered this year for the first time by the University of California at Riverside, June 28 to August 9—is to furnish University students and teachers of agriculture the opportunity to obtain training in these subjects in a region where this type of fruit growing is regularly pursued.

Both the scientific and practical side of the subjects treated will be presented. While the courses are not designed for fruit growers, the school will be open to interested auditors upon payment of the regular fee.

The instruction will cover such subjects as propagation, planting, varieties, breeding, tillage, fertilization, pruning, diseases and injurious insects, picking, packing and marketing.

Dressed Lambs Go East

SIX Federal inspected California packing plants recently have been shipping dressed lambs to Eastern markets, quarantine regulations preventing the forwarding of live animals. In a single week 33 express refrigerator cars rolled East, carrying 20,000 dressed lambs.

W. P. Wing, secretary California Wool Growers' Association, gives much credit to these packers for thus saving the lamb situation, as feed was drying up and the animals had to be marketed. Some sheep men who are not members of the Association are reported to have been deceived by irresponsible dealers regarding conditions and to have sold their lambs at unnecessarily low prices.

Railroads agreed to a 25 per cent reduction in rates on lambs shipped for slaughter to main packing points in California. This meant a saving of $40 per double-decked car from Red Bluff to Los Angeles.

Dual Marketing System

WITH the recent resumption of business at the Los Angeles packing plants a serious glutting of the market and a rapid fall of lamb prices resulted from a dual system of marketing—shipping direct to packers and through the Union Stock Yards—according to the California Wool Growers' Association. This dual system required the establishment of a control committee to regulate shipments and issue permits for shipping livestock.

Buying New Dehydrators

TWENTY FOUR walnut dehydrators have been purchased already this year by growers, according to the California Walnut Growers Association. Eight per cent of the latter's product was dehydrated last year and it is predicted that within a few years half of the walnuts in California will be cured artificially.

The University of California is preparing a bulletin on walnut dehydration. The association [illegible] appropriated $1000 for gathering information on this important subject and has arranged to have a copy of the bulletin sent to every walnut grower in the State.

Condemn Contraband Fruit

TWO HUNDRED TWENTY-FIVE lots of contraband plant material—mainly fruits—carried by passengers on the steamship Maunganui which recently arrived in San Francisco from Australia via Tahiti, and one-half ton found in the ship's stores were condemned and destroyed by inspectors of the State Department of Agriculture. The contraband material consisted of apples, quinces, egg-plant, papayas, peaches, cucumbers, tomatoes, oranges, avocados, passion fruit, coffee berries, plants, taro, limes, chochos, grapes and sugar cane.

Oregon Cans Vegetables

THE success of the Eugene, Oregon, co-operative cannery in putting up vegetables is causing other canners to consider enlarging their operations along this line. J. O. Holt, manager of the Eugene factory, sells vegetables in car lots to hotels and restaurants, which find it cheaper to purchase supplies ready cooked than to buy raw vegetables and go to the expense of preparing them for the table. Many canned Oregon vegetables are sold in California.

In 1919, 200,000 cases of vegetables were canned in the United States. Three years later this had increased to 500,000 cases—20,000 tons.

Late Blooming Alarms Growers

GREATLY retarded bloom of certain fruit trees, especially peaches, is causing grave concern among Southern California growers. The explanation of this unfavorable phenomenon is as follows, according to V. F. Blanchard, assistant farm adviser:

"Early fruits were forced into bloom early by prolonged warm winter weather. The cold weather which followed is believed to have checked the growth activities of later varieties, such as Tilton apricot and late peaches and—with the exception of the Antelope Valley—Bartlett pears.

"The sudden checking is thought to have weakened the trees and prevented blooming at the normal time. The condition is found in orchards which have been receiving thorough winter irrigation, therefore it cannot be attributed primarily to the dry winter.

"In 1904 a similar condition was followed by a light crop, according to reports."

FARMER'S Viewpoint

—"Hayin' Time"—

One day on a mowing machine will cure almost any case of city-bred dignity.

And if the field is a little rough it doesn't take a college graduate to appreciate the value of a sheep-skin!

Many a man that has cut a wide swath socially is absolutely useless at haying time.

That is when the real horse-lover unlimbers his most complete and artistic vocabulary.

Strong language never hurt a team, but beware the sullen "skinner" with the strong arm!

The average hay crew starts by spoiling a stack of alfalfa and ends by causing a stack of trouble.

"Make hay while the sun shines" is a good motto, but many a good crop has been lost because of moonshine.

The novice, in curing his first hay crop, may be cured of his desire to farm.

"Why give yer money to th' Turkish bath emporium," inquires Jason Nott, "when ye kin get the same effect by pitchin' hay in th' loft under a tin roof and be paid fer it!"

Majority of Tulare Citrus Growers Are Loyal to Exchange

Trying Period Fails to Shake General Belief in Principles of Co-operative Marketing.

By TULARE FARMER

([illegible] An ORCHARD and FARM [illegible] recently interviewed a number [illegible] growers in the great San [illegible] Valley citrus district, in an effort [illegible] whether the California Fruit [illegible] Exchange was receiving the same [illegible] accorded it in more southerly dis[illegible] this summary of conditions is given [illegible] with.)

ALMOST but not quite 70 per cent of the citrus crop of Tulare County is shipped through the California Fruit Growers' Exchange. That means that for practical purposes approximately two-thirds of the growers approve the exchange theory [illegible] management. Something less than [illegible] third are not in it. Whatever their [pr]ivate views may be, the reasons [for] these conditions should be worth [look]ing into.

In the first place there is a consid[era]ble difference in various parts of the district. From Strathmore south [to] Bakersfield, 85 per cent of the fruit [go]es through the exchange; from [Strath]more into Porterville and the immediate vicinity, the percentage is about 80. From there south it is so near 100 per cent that independent shipping cuts no important figure.

From Woodlake north into and in[clu]ding Fresno County, independent shipping is extremely light. Between Strathmore and Woodlake, independent shipping is heavy enough to make the Central California average at the figure first mentioned.

From Strathmore south most shipping is done through one "sub-ex[chang]e"—the Tulare County Fruit Exchange. From Strathmore north, the majority of the houses ship through two sub-exchanges, the Central California and the Lindsay-Merryman. Interviews with citrus growers in and out of the exchange indicate some feeling that there is a little too much duplication of overhead; that two exchanges would be sufficient for Central California. No one interviewed, however, mentioned this in more than a casual, off-hand way. One heavy shipper, a director in one of these sub-exchanges, stated:

"What does it matter? Our selling costs are so near the lowest that the extra costs if any are too low to calculate. The extra attention all shipments can get probably more than makes up for the small fraction of a [cent] involved in duplication of offices."

Another exchange shipper, who would prefer two sub-exchanges to three, pointed out that the three exchanges gave Central California a very high representation in the Fruit Growers' Exchange. The matter of duplicate organizations is mentioned here mainly in connection with the amount of independent shipments, for in parts of the district where one exchange operates, the proportion of exchange shipments is far greater than where two sub-exchanges operate.

REASONS FOR SHIPPING CHOICE

In handling fruit or produce of any kind, dissatisfaction develops more often over friction with the packing house staff than with the head organization. This is so in Central California citrus circles. Unattached growers sometimes fall out with the packing house manager and go from independent shipper to the exchange or from an exchange house to the independent.

In looking over a card index of shippers through independent houses, this point was emphasized. More frequently satisfaction with local management was cited. Something like this is typical.

"I started in with such and such a packer and shipper when I came and I have received satisfaction, so I do not feel like changing"—or

"So and so helped me with advice and otherwise when I came here without experience, and I want to ship through him"—or "So and so is a friend of mine and I ship through him."

[illegible] there is this occasional explanation "I have never got a square [dea]l from any shipper and am trying [this h]ouse now." The disposition of [such] individuals can be guessed. Such [an explanati]on was comparatively rare. [illegible] as many have left independ[ents] for the exchange as the ex[change] for the independent.

[There] is another more or less rare [reason] which possibly may show dis[illegible] of the exchange and independent [illegible] or it may simply be a desire to [illegible] of red ink: "I always sell [illegible] when I can."

[illegible] "When I can[not] [illegible] I will ship through [the exchange]."

[illegible] a few definite statements [illegible] would be of value before [illegible]

[illegible] THOMAS, Exeter Orange [illegible] Association— Not enough [illegible] the exchange [illegible] the [illegible] its [illegible]

strictly co-operative lines. It would give the growers more interest and responsibility in the management of the exchange than they have now when many merely ship through commercial packers."

GEORGE E. WADDELL, Exeter, Lindsay, Naranjo—"I ship a small amount of my fruit through an independent house, but even the independents admit the whole industry would fall to pieces if the exchange did not operate as strongly as it does now. Probably a lot of improvement could be made here and there along the line in exchange management, but nothing is perfect and the exchange is the best thing we have in the citrus business. It makes the best pack and takes the most care in shipping. In this county it would help slightly if there were not quite as much duplication of organization machinery."

A small grower, formerly shipping through a commercial packer in the exchange, but now with another organization, said: "The object of the exchange is excellent but the achievements are not quite as satisfactory as they should be. There seems to be some discrimination against the small, unattached grower who has to ship through a commercial packer in the exchange. The exchange holds the industry up and in my observation and experience gets as much money for the grower as any independent packer and shipper."

Another small grower and a director in an exchange house, remarked: "I do not know as much as I should about conditions but I am rather inclined to feel that there is something lacking somewhere in the marketing end and that we do not get as much for our fruit as we should. I have heard rumors that the exchange sales department used exchange fruit to break prices for the independents. Really I don't know definitely about any of this."

This quotation is given because it represents a more or less common attitude among a minority of growers who are not altogether satisfied with conditions nor sure of rumors of scandal that have come to them. Only the rare individual who is sure that every business organization is a conspiracy to beat the farmer in general and himself in particular is out and out convinced that the woodpile is filled with niggers. Here are a few more quotations:

A. L. LEWIS, President of Lindsay District Orange Company, (Composed of growers and doing a little commercial packing.)—"For a number of years after coming here I heard criticism of the exchange by independent [illegible] [illegible]d the criti[cism] without [illegible] [illegible] many growers to now [illegible] helping organize the house and shipping through the exchange I have become the strongest kind of a supporter of co-operative marketing of all kinds of farm produce and I am particularly strong for the exchange. There will be mistakes made in anything, but it would be unreasonable to stay out of the exchange for some imagined fault, when everybody knows that it is the only thing that has made the citrus industry what it is."

DR. ROBERT E. PIERCE, Lindsay: "I am strong for the exchange and the only fault I have is that it does not control enough of the production. The reason it is not stronger is the opposition of independent packers, and many growers believe stories of exchange mismanagement without investigation. Another big reason why the exchange is not stronger is that lots of growers need money to run their places and they can get the money from independents even when the banks will not advance it. Then their crop is tied up year after year with the independents and they never do get free.

"The exchange selling cost is only about half of what the independents charge and yet out of the total selling cost of 12 cents a box or less, four cents a box is taken out for advertising that helps the whole industry. We also save a big sum on material through the Growers' Supply Company. There is some talk of possible improvement if we had an independent exchange to handle all Tulare County citrus fruits, but the present method is far better, since the sales staff now has a steady and all-year-round supply of fruit. If the north and south were separated, there would be two selling organizations and an uneven supply of fruit for each."

MAKEE MHOON, Lindsay, a heavy producer and director of a sub-exchange—"For 15 years I have been shipping through the exchange and have nothing but good to say about it. Markets everywhere and the whole industry would go to pieces without the exchange. It would, of course, strengthen the exchange if there were more co-operative associations participating in the management."

FRANK DAYBELL, Porterville and Ducor, Chairman Citrus Department of the Farm Bureau: President Richgrove-Jasamine Citrus Association—"I am of course sold on the exchange. Our handling cost is less than that of any other organization. We get the best prices for our fruit and buy our stock and material at the lowest rates."

PETER TING, Porterville, pioneer citrus grower—"The exchange may not pack any cheaper than others but it puts out a better pack at no greater expense and certainly distributes to better advantage. Our pressing problem up here is not to determine what distributing agency to use, but to control our time of shipping. We try to rush our navels into the market at the earliest possible minute. It crowds the market and the packing houses. By systematic frost protection or in some other way we will have to ease up this rush of early shipments and lengthen the period of shipment. One hundred per cent exchange fruit would not do this unless the time of picking by the individual growers could be governed in some way. Until this problem is properly worked out, the industry in Central California will be on an unsatisfactory basis and there will be dissatisfaction with shipping methods."

In general, this is the attitude of all who are in close touch with the exchange and participate in the management. Criticism by well-informed growers comes mostly from individuals who are unorganized, have no way to form a real co-operative house and must fall back on the commercial packer who ships through the exchange.

Such growers feel the packer makes too much profit by his packing and that the small producer does not get the service in boxes and otherwise that he would if he could belong to a co-operative house of his own. This criticism, it is well to note, relates to the way these unorganized producers are connected with the exchange.

Exact figures are not available but the percentage of real co-operative houses is considered small, too small for the greatest welfare of the organization. Several growers' stock companies are almost co-operative but also do a little commercial packing. Naturally they are democratic and the growers keep in close touch with things.

Finally, there are numerous commercial packers. A big orange grower builds a house and joins the exchange. While packing his own fruit he can pack that of his neighbors. He makes quite a business of doing so. The small neighboring producer who ships through him gets the benefit of exchange selling, but participates not at all in exchange management, nor does he even have any part in the management of the packing house.

A fuller discussion of this side of the subject will be unfitting here. Clearly the organization of more co-operative houses would be beneficial; also difficult. If accomplished, it certainly would help the exchange and make the growers more pleased with conditions.

INDEPENDENTS ARE CRITICAL

As to real criticisms of the exchange, the following will be worth noting: In the reasons given for not shipping from an exchange house, the most common was: "The exchange is ruled by the south. They think only of southern fruit and try to sell our fruit in a way to get the best prices for their fruit."

This is a strong talking point by the independent shippers, but it is fair to give the attitude of exchange members who participate in packing house management and exchange affairs. They state and show definite reasons why the north has absolute control over the time of shipping their fruit and the places and manner in which it will be shipped.

Occasionally a grower stays out because he "believes in competition." In the Lindsay district several were strong exchange members until they decided that the Farm Bureau Marketing Association would go a little farther in marketing than does the exchange.

One prominent producer is not in the exchange because he dislikes certain features of the management and wants them to go much farther toward reaching the ultimate consumer.

The situation can be summarized about like this: The big majority are in it and for it strong. Almost unanimously producers agree that (faults notwithstanding) it holds the industry together. A considerable percentage would like to see even more steps in handling the fruit than are now taken; a few are out because they believe in less co-operation and more competition; many are out because they are satisfied with the general situation as it is and approve the results secured by the independent shippers who handle their fruit.

As is the case everywhere the conduct of the individual producer frequently depends more upon his feeling toward the house manager that he deals with or refuses to deal with than toward the organization in general.

The greatest single obstacle to increased co-operative marketing of Central California citrus fruits is the fact that unorganized growers can sell so easily through the exchange by aligning with commercial packers, and the difficulty of organizing more real co-operative associations to take the place of such commercial packers. The situation however is easier to describe than alter.

Accomplishment

By JASON WELLS

YES, we're comfortable, thank you—nothing fancy, to be sure.
We're neither young nor ancient; and neither rich nor poor.
Our farm is not the largest nor the smallest hereabouts,
And though we've had our innings, we've also had our outs!
So I waste no time in dreaming of the things we might have done,
For I've found that in the *doing* is always half the fun.

MAKING something out of nothing is the finest cure I know
For an ingrown disposition—I like to watch things grow!
When we came here all was barren—not a building, fence or tree,
And everything about us is a part of her—or me.
Our home? It's not a mansion, but it answers all our needs,
And the flower beds surrounding it were once a patch of weeds.

YOU say you like the orchard and the vine-clad garden wall?
From where the fruit is growing came the stones—I moved them all!
I've watched the trees I planted there for forty years or more,
And trained the crimson rambler rose that frames the cottage door.
I remember when the hay field was a waste of drifting sand.
All we started with was courage—and this piece of sun-parched land!

WE FURNISHED water, work and plans; then Nature did the rest.
We've made mistakes—who hasn't? But we've given it our best.
Good health, good friends—a kingdom small that we can call our own—
Then, why should we be lonely, though the children all are grown?
We've learned that what is most worth while, we cannot buy or sell;
That half the fun's in planning—and half in building well.

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Growing Vegetables for the East

Opportunities Are Attractive, but Many Factors Must Be Taken Into Consideration

By RALPH G. RISSER

Crop Production Manager, California Vegetable Union, Contributing Editor of ORCHARD and FARM

THE production of vegetables for Eastern shipment is an important industry in California. Official figures for 1923 indicate that over 53,000 carlots originated in this State.

R. G. RISSER

Such enormous shipments have been made as the result of extensive development of vegetable production and distribution, which has been going on for years. Just now, however, there is considerable doubt as to whether this growth will continue uninterrupted at the same rate. In fact, there are significant indications that in certain lines, at least, the trend towards increased production will be temporarily discontinued and it will be a problem to maintain a well balanced and adequate supply in order to hold trade already established and keep pace with the increase in population.

In considering this situation, many farmers are inquiring about the growing of vegetables on a commercial scale for the Eastern trade. There are certain important principles which should be kept in mind and those who think they see an opportunity in this line should endeavor to get started right and thus avoid costly mistakes.

Selection of land is very important. For these crops, rich mellow soil is desirable. Drainage should be good, land should "lay well" for irrigation, and soil should be free from nematodes or excessive alkali.

The locality should be well adapted from a climatic standpoint to the particular crops which are to be cultivated. Unless the climate is so well suited to the crop that maturity can be brought about at a favorable marketing period and good quality and yields can be secured, other districts which are especially favored will have the advantage.

Besides having the benefit of such natural features as good soil and climate, the land should be accessible to transportation, packing and marketing facilities.

As a rule it is well to avoid extremes in planning the extent of plantings. The small grower who has a few rows of each crop often has special difficulties in producing and marketing his commodities on an economical basis and he will continue to do so until he undertakes to work on a commercial scale. The grower who plants a vegetable crop as a very minor and incidental part of his farming operations often lacks incentive to give it proper care and attention when the pressure of work on other crops which he considers more important interferes.

On the other hand, the tendency to undertake plantings on too large a scale should be avoided. Vegetable growing is intensive work and requires close supervision. Those with limited experience, capital, equipment or available labor should be particularly cautioned not to operate too extensively. Men who are inclined to be overambitious should be especially careful to plan conservatively.

But whatever the individual acreage of the grower, the aggregate of the community should be adequate to justify economical packing and profitable shipment. Vegetables in each shipping district should mature in ample quantities to warrant daily loading of full carloads. Small lots are hard to handle satisfactorily unless they can be consolidated with others which will work up into carlots.

Definite, well-planned and properly balanced schedules of planting are desirable as a means of working out production operations on a systematic basis. Such programs should regulate the quantity of each product by prescribing the acreage and should regulate the maturity by prescribing the time of planting.

Within certain limits the shipping season should be extended to provide continuous supplies, avoid high peaks of movement, spread out the labor required and prevent periods of acute overproduction.

Maturity and time of shipment also should be timed to conform to the most favorable marketing periods in so far as climate will permit quality and quantity production at that season of the year. More or less permanent systems of cropping and rotation can be worked out if acreages of each crop are relatively constant. Such systems stabilize the supply, make for efficiency in farming, and reduce the element of risk. Choice of crops should be made with due consideration of market requirements and in consultation with a well-informed distributing agency.

INTENSIVE-VS. EXTENSIVE

A Kansas farmer reported recently that he made $100 last year from 100 tomato plants and the same profit from 100 acres of wheat. The tomatoes were raised under glass and reach the highest local market.

Too Much Water Injures

OVER-IRRIGATION, which leached the plant food out of an open granite soil, put a block of citrus trees belonging to Peter Ting of Porterville into very bad shape. Two years ago they looked almost "gone." A change in irrigating methods and judicious fertilizing has put them in ideal condition again.

Formerly the water was put in the furrows and held there until it got to the bottom and soaked up everything. This took two days or so and it took most of the strength from the soil. Two years ago, with the approval of Professor Schoonover, Mr. Ting decided to run the water for brief intervals only.

He turns into one furrow the water that formerly went into two and hurries it to the bottom of the furrow as quickly as possible, then he shuts it off for 10 or 15 minutes and turns on half the amount. This keeps water in the furrow all the way along and gives the ground an even wetting. In about six to eight hours the water is cut off, so there is no leaching.

Water has to be applied more often, but the total amount used is less than formerly. Along with the change in irrigation three applications of quick-acting nitrogen fertilizer were given. In two years' time the new policy has brought the trees back into perfect condition.—TULARE FARMER

Guineas Are Profitable

GUINEA raising is becoming more profitable as a result of their successful substitution in fashionable hotels and eating places for such game birds as grouse, quail and partridge, says the United States Department of Agriculture.

When well cooked, guineas are attractive in appearance, although darker than common fowls, and the flesh of young birds is tender and of especially fine flavor resembling that of wild game.

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[illegible]

Following the Farmer's Dollar

Prominent Agricultural Authority Shows How Business Depends on Basic Industry.

ILLUSTRATING his contention that agriculture is fundamental and that business is largely dependent upon the farmer, Edwin T. Meredith, former Secretary of Agriculture, a recent visitor to the Pacific Coast drew the following interesting comparison in the course of a talk before local advertising men:

E. T. MEREDITH

"And why should agriculture affect all business? I spoke in Cleveland recently. Prior to my talk I clipped the first two pages of the Cleveland classified telephone directory on which the first ten listings were advertising agencies, adding machine companies, acetylene gas plants, amusements, [illegible]tors, accountants, etc.

"I took ten of them and said, 'Suppose the farmer sends $200 to Cleveland for an acetylene gas generator.' The acetylene gas company, having received the farmer's payment says, 'We will go over to one of these addressing companies and let them circularize our business prospects.' And thus the addressing company gets a good order, and says 'All right, we have an order. We are busy. We need an adding machine. And business being good, they buy an adding machine.

"The adding machine company says, 'Let's advertise.' They go to an advertising agency, and business is good in that concern. And somebody in that agency has saved up enough money to buy a house. And he needs an abstract. And the abstractor must have an accountant to help make it, and the accountant, out of the proceeds from his work, takes his family to the theater amusement.

"If the farmer had not paid his $200 for the gas generator, the amusement man would not have had the accountant as a patron. The farmer's $200 means only $200 to him, but a thousand dollars or more to the town because of the chain of purchases it makes possible. If you follow the pedigree of any dollar back far enough, you will find a farmer as the foundation sire.

"A man said to me recently, 'Yes, but you forget that the first man that got that money took ten per cent out of it as a profit, and the next man took ten per cent out for a profit, and the next man took ten per cent, and pretty soon the original amount had disappeared.'

"I said, 'All right. What would you do with $100 profit made today?' 'I would go home this evening with that suit my wife has been wishing for. I would take that $100 to the department store,' he replied, so you see, even our profits are put right back into the channels of trade, and the $200 keeps on moving."

The Orchard Map a Valuable Accessory

IS IT worth while for the average commercial orchardist to go to the trouble of making a map of his ranch, showing the location of every tree? Will such a map in any way help to increase the net profits he receives from the orchard? The progressive grower of deciduous fruits will amost invariably answer "yes."

The map may be used as the basis for a few simple records of certain individual trees which require special attention, or it may be the basis of an orchard analysis to locate all the low producing trees, and determine the various causes contributing thereto, and also the necessary remedial measures.

A few of the very evident and practical uses for an orchard map are the following:

(1) To make note of certain trees which have been attacked by insects, diseases or rodents. When such records are made regularly it is usually possible to apply control measures before the injury has progressed far enough to decrease the productivity of the trees.

(2) A map is of value also in locating trees which are not the variety they are supposed to be nearly every orchard contains some trees of this sort. They may be of some other variety, or they may be seedlings. In an almond orchard the seedlings may bear bitter nuts, and great care must be taken not to mix these with the good ones. The map might indicate that such trees should be top-worked.

(3) In the case of orchards which are planted with two or more varieties in alternating rows, or pairs of rows, for cross pollination purposes, the map is of great value in showing the location of the rows of the different varieties. It is useful also in locating occasional trees which were planted in the wrong row.

(4) When one has determined the best locations for temporary irrigation ditches, they can be marked on the map. This will facilitate greatly laying out the ditch lines in years to come.

(5) In case a careful orchard analysis is to be undertaken, the map will be the basis of individual tree production records over a series of years. This is usually an estimate of the crop on each tree, taking into consideration a normal full crop for the year, rather than actual weights of the fruit.—LLOYD AUSTIN, Division of Pomology, University of California, Berkeley.

When Is Fruit Pre-cooling Profitable?

PRECOOLING is the process whereby an effort is made thoroughly to chill fruit previous to packing or loading into the car.

Precooling after loading by blowing a blast of very cool air in one end of the car and drawing it out at the other, was a method used a number of years ago but now largely discarded.

As now generally practiced, the fruit is stacked rather loosely in a heavily [illegible] cold storage room and allowed to [illegible] at a temperature perhaps 10 degrees below freezing for from 6 to 24 hours, depending upon the condition or [illegible] of the fruit and its temperature [illegible] in. The actual temperature [illegible] is thus quickly lowered to a [illegible] ripening is materially [illegible]. The precooling of such fruits [illegible] has proved highly advan[illegible] in that precooled fruit carries [illegible] better condition, and the mar[illegible] radius has been materially in[illegible]. Experimental shipments of [illegible] pears and other fruits, ripen[illegible] the summer months, show [illegible] precooled within a few hours [illegible] the fruit will remain [illegible] condition several days [illegible] where cooling is delayed. [illegible] however is an added [illegible] expense to the fruit grower. [illegible] receive extra handling [illegible] refrigeration facilities are [illegible] shipments, an [illegible] [illegible] ice and [illegible] satisfactory. For [illegible] or more [illegible]

with the more perishable fruits is no longer a matter of doubt. It may also prove valuable in connection with shipping riper fruit to market. However, it is not to be looked upon as a general insurance policy against "red ink" and before making a heavy investment for precooling facilities, there should be some very good basis for believing that such a plant will more than pay interest on the investment.—F. W. ALLEN, Division of Pomology, University of California.

Horntails and Hoppers

IN reply to an inquiry from Hans Hanson, Woodland—The new blackberry canes which wilt down about six inches from the tip probably are injured by the raspberry horntail, a little worm which works in the center of the cane. The way to control this pest, or any other borer working in a similar manner, is to pinch off the affected tip and destroy it. No spray could be applied that would reach these insects.

Leaf hoppers on grapevines may be controlled with a thorough application of Black Leaf 40 and soap spray. The former is nicotine sulphate and should be used at the strength of one pint to 100 gallons of water. In order to make the spray penetrate and bring about more effective control, add four or five pounds of some good, strong soap, such as whale oil. The soap must be thoroughly dissolved before being placed in the spray tank.

The best time to apply this spray is early in the [illegible], before the hoppers [illegible] [illegible]—[illegible]

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NO COMMISSION. Sell your farm direct to buyers. We put you in touch with thousands of buyers through our chain office service. Owner only pays small listing fee for expenses. Hundreds of farms for sale from OWNERS. NATIONAL LISTING BUREAU, INC., 443-444 Roberts Bldg., Los Angeles, Calif.

POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, California.

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PIGEONS. Selected Silver King youngsters for sale. JAS. A. AVERY, Napa, Calif. [illegible]

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Intensive Fruit Growing—My Experiences

By CHARLES WEEKS

CHARLES WEEKS

IN the old country, fruit trees have been trained on walls and trellises for ages. The dense population of the old world has made it necessary to economize on space. Not only is there a saving of space but also the quantity of fruit produced on the sunny side of a wall is superior.

The dwarfing of the tree makes it possible to grow a large variety of fruit in a very small space. Thus even a one-acre farm can have every kind of fruit in many varieties, each tree producing just enough fruit to furnish one family during its ripening period. This is better than having one overgrown tree produce more fruit than the family can use.

For example, on my own one acre farm at Owensmouth, California, I have 15 varieties of peach trees ripening from June until December, making it possible to have fresh peaches on the table constantly for five or six months in the year. We have 12 varieties of the choicest plums ripening from the earliest to the latest, 11 varieties of pears, 9 varieties of apples, besides nectarines, figs, mulberries, persimmons, pomegranates, oranges, lemons, walnuts and loquats. These are all trained on the fence around the acre, being fastened to ordinary wire stretched on posts, the strands being eight inches apart on posts 6 feet high. The trees are planted eight feet apart and the seven limbs that come out on either side of the tree are bound to the wire and run out horizontally four feet on each side, thence at right angles to the top of the fence, each right angle turn being four inches nearer the trunk of the tree.

This will make a tree with fourteen branches, each branch being from six to eight feet long, thus producing a tremendous fruiting area on a space eight feet wide and 6 feet high, the tree being flat as a fan. Every part of this type of tree has the advantage of receiving the sunlight so that the fruit is highly colored and full of sugar.

METHODS OF DWARFING TREES

There are three methods of dwarfing fruit trees: (1) by grafting on to dwarf roots; (2) by cutting back the roots in the fall; (3) by summer pruning.

In the old country trees have been planted on dwarf roots almost entirely.

In the United States there has been so much waste space that heretofore trees have not been planted on dwarf roots, but as population increases and the garden home becomes acknowledged as the most ideal life, there is increasing demand for more intensive methods of fruit culture.

In this country it has been found that summer pruning of the new wood growth dwarfs the tree and brings it into profitable bearing very early. This forced bearing stunts the wood growth so that the tree goes to fruit instead of wood. The sap has only a short distance to travel on the small compact tree and thus is forced to make fruit instead of wood.

In the summer pruning the new wood shoots are pinched back with the thumb and finger. When the new shoot has about six leaves, pinch off three. This stops the growth and forces the sap to the end of the branch where the growth is desired. The lateral ends of the main branches are allowed to grow for the season unless growth is too vigorous and robs the fruit spurs. By the pinching off of each new shoot, fruit spurs are formed for the next year's fruiting wood. This forces the tree to early production and thus dwarfs it.

The cordon or French System where the trees are planted two feet apart in rows six feet apart and kept pruned back to only one main trunk is the most intensive method and allows for about 3000 trees to the acre. Trees trained on this system should be on dwarf roots. The most practical way for the small farm however is to summer prune trees on ordinary roots. This insures early fruiting in large quantities on small trees.

AN INTERESTING WORK

The training of fruit trees is interesting work. The man on the intensive little farm has time to do this delightful work and there becomes an artist. In fact, the man on an intensive little farm is a creator endowed with a wonderful power of producing the most delicious viands from soil, water and sunshine. No work given into the hands of man to perform is more elevating or more healthful. The power that man has over the training of a tree is remarkable. He can make an apple tree grow into a beautiful hedge at six feet or spread like a lady's fan against the side of the house.

Beautifully trained trees are just as artistic as beautiful flowers. The vase shaped tree is another style that is very pretty and very practical for the little farm. The new tree should be cut close to the ground and then allowed to grow ten new shoots. These should be bound to laths holding them open like a vase until they are set. All side shoots are kept pinched off, only these ten original branches being retained. They will thus grow strong and sturdy and all the fruit will lie next them and there will be no broken limbs.

There is also the cone-shaped tree made by allowing branches to grow out from one main trunk at regular intervals, each branch restricted in growth just as needed to form the cone.

Thus we have the fan shaped tree on the wall, the laterally trained tree on the trellis or fence, the cordon trained tree with one stem or spike, the vase shaped tree, the cone shaped tree and the tree trained as a hedge. Also the tree can be trained as an umbrella.

Vegetable Gardening Notes

By RALPH G. RISSER

A NEW TOMATO SHIPPING DISTRICT—Growers around San Fernandino, Grand Terrace and Del Rosa (San Bernardino County) are planning to produce a crop of fall shipping tomatoes for the first time.

POINTS ON POTATO GROWING—T. H. Lambert, a veteran potato grower, recently explained some of the special points which he had found most important in growing potatoes. Among these was the value of deep plowing. Lambert declares land should be plowed twelve inches deep for potatoes.

POTATO YIELD INCREASED BY USE OF FERTILIZERS—At this season of the year when potato planting is in order, it is well to keep in mind the increase in yields secured by the Los Angeles County Extension Service last season by the use of nitrogen carrying fertilizers. As an average of numerous tests an increase of at least 60 per cent has been secured in the yields, due to nitrogenous fertilizers, a part of which were in quickly available form.

POTATO GROWERS' DEPARTMENT PLANS TO INCLUDE OTHER TRUCK CROPS—The Los Angeles County Farm Bureau has maintained a very valuable department dealing with potatoes. It has accomplished some noteworthy work in the way of encouraging the use of cover crops, fertilizers, certified seed and better grading. It now contemplates enlarging the scope of its activities to serve the vegetable producers generally. The directors regard this as an opportune time for such a move as American growers are manifesting considerable interest in vegetable growing on account of operation of the Alien Land Law.

PUBLICATIONS ON VEGETABLES—Commercial producers of vegetables may secure publications from the University of California (Berkeley) on tomatoes, cabbage and onions; from the State Department of Agriculture, Sacramento, on celery, tomatoes, Bermuda onions, lettuce and cauliflower, and from the California Vegetable Union, Los Angeles, on cauliflower, cantaloupes, celery, lettuce, tomatoes and potatoes. Inexperienced growers especially would do well to secure and read all of these publications in addition to getting information from successful producers and field men of the distributing organization.

Frost and Close Planting

THE way close planting of fruit trees results in greater frost injury is illustrated by the experience of Santa Clara Valley horticulturists. In early days, when there were few orchards in the valley, damage from this cause was unusual, but after the land was covered with fruit trees, preventing free circulation of air, frost losses became common.

In most of the older orchards the trees were set 16 feet apart and the tops made a dense mass of brush. Some growers cut out every other row and as a result suffered less frost injury than neighbors who left trees close together.
—W. H. HENLEY, San Diego County.

Know Your CALIFORNIA

Little Journeys Into Agricultural Districts

[illegible] ORCHARD and FARM [illegible]

PATTERSON COLONY STANISLAUS COUNTY

PATTERSON and Patterson [illegible] have a "so different" [illegible] that invariably [illegible] pleased comment from the newcomer. This is due to the fact that the [illegible] planned and [illegible] as a [illegible] designs of skilled engineers [illegible] made other [illegible] before starting work.

The result is a colony [illegible] avenues lined with [illegible] and other decorative [illegible] and a town that is modeled after [illegible] with radiating [illegible] from a central [illegible] feet [illegible].

A [illegible] irrigation system [illegible] world [illegible] water [illegible] the colony lands [illegible] also at any [illegible] at moderate cost [illegible] per acre per year for all expenses.

Diversified farming is a [illegible] of the Colony. Alfalfa [illegible] seven crops per season [illegible] the peach and apricot orchards [illegible] and the [illegible] adapted to prunes [illegible] pears and other trees. Poultry raising [illegible] is rapidly forging ahead [illegible] being [illegible] for that purpose.

The town of Patterson [illegible] population is noted for its [illegible] school buildings [illegible] located in the most [illegible] modern structure. A [illegible] eight churches, an attractive [illegible] a Chamber of Commerce, swimming pool with a plunge [illegible] feet.

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Developing Oak Knoll Ranch

(Continued From Page Two)

[illegible] minimum," explains Melone, "because it eliminates the time wasted in [illegible] on short rows and in plowing [illegible] headlands. The saving of space previously occupied by fences also [illegible] considerable."

[illegible] was filled by numerous back [illegible] the ground for several [illegible] having been plowed one way. A number of large willow trees growing along this watercourse were cut down [illegible] the stumps killed by boring a hole in the top of each one and inserting a small quantity of arsenic and caustic [illegible] mixed with water to form a [illegible].

Three large oak trees were left in the orchard, after cutting off the lower limbs. They are expected to interfere very little with the growth and care of nearby fruit trees.

"But what about oak root fungus? [illegible] you thought of that?"

"Yes, indeed," admitted Melone. "Many a tree have I dug up and replaced because it had been killed by that disease. I have found, however, that this fungus does not develop on the roots of growing oak trees."

The purpose in leaving the native forest monarchs was to add to the residential value of the orchard, which might at some future time be subdivided and sold.

The 140-acre orchard is set to pears, prunes and apricots, one-third each; Bartlett pears on the lower, moist ground, Blenheim apricots on the higher, dry soil, and French, Imperial and sugar prunes between. Pear trees grafted on French roots, which are said to be resistant to oak root fungus, were planted on the lowest ground, where there is danger of the disease mentioned, the trees worked on Jap roots set elsewhere.

The tree rows were laid off 28 feet apart each way and 30-inch subsoiler run in the rows twice both ways, the first time 15 inches deep, the next time 20 to 22 inches. This left the ground at the intersections in fine shape for digging holes.

Contrary to the usual custom, none of the trees was cut back when planted, as it is believed they form a better head without this severe surgical operation.

GRAPES AS INTERCROP

The subject of intercropping was given careful consideration. Before deciding upon grapes as the most profitable crop to plant between the trees, it was learned from the county assessor that the valuation of the land would not thereby be increased, the taxable value of orchard land not being raised until fruit trees come into bearing.

"We found it very difficult to decide what varieties of grapes to plant, as the prohibition law complicates the situation," explained Melone. "Wine grapes—they are called 'juice grapes' now—always have paid best in Napa County. White sorts were considered most profitable in pre-Volstead days, but now there is little demand for them, as home winemakers prefer red grapes.

"Therefore we decided to plant the following varieties, all of which ship well to distant markets: Alicante Bouchet, Mondeuse, Carignan and Petit Syrrah. If wine 'comes back' we will have a salable product, being in position to catch the drinker's dollar, [illegible] and coming, as it were."

The grape rows were laid off 10 feet from the trees, both ways. This put the vines eight feet apart between each [illegible] of trees and four in the center of each rectangle formed by four trees. The latter were planted with vines grafted on St. George roots, which are considered phylloxera resistant. This [illegible] permanent planting, as it will be [illegible] before the vines are hurt by [illegible]. Straight cuttings planted in [illegible] places, are expected to produce profitable crops in three years and [illegible] taken out 10 years later.

Because of the way the ground was [illegible] it cost only a penny apiece [illegible] the vines. Cultivation will be [illegible], because the rows were [illegible] to conform to the width of im[illegible].

[illegible]ST TREES VALUABLE

[illegible]

How to Increase Berry Profits

Timely Suggestions of Particular Value to the Beginner in Small Fruit Culture

By J. L. STAHL
Division of Pomology, University of California, Berkeley

WHILE different kinds of berries vary in flavor, texture and condition, yet several factors play an important part with even the best varieties in making them either a relishable fruit or a sticky, undesirable mass of seeds and juice. These factors are temperature, moisture, disease, containers, and methods of handling.

Plants produce their best berries during bright, fairly warm days and cool nights in a moist but not water-soaked soil. When the weather is hot and the soil dry, the fruit is apt to be seedy, small and sour. During cool days and on wet soil the fruit is watery and soft and lacks flavor.

Berries have their best flavor when ripened on the plant, and for home use need not be picked until entirely ripe. When the fruit is to be shipped and will be in transit for several days it will need to be picked before ripe and handled with the greatest care to reach the consumer in good condition.

Strawberries for shipping should be picked by breaking the stem just above the calyx, leaving a portion of the stem intact. When the consumer can be reached within 24 hours the entire berry may be red in color but firm. If the fruit is to be in transit for several days it should be picked when the individual berries are about two-thirds red.

Raspberries for distant markets should be harvested as soon as the fleshy portion of the fruit will slip from the receptacle or core without crumbling. At that stage of ripeness the fruit of red raspberries will be firm and pink or light red in color, and the fruit of black raspberries (blackcaps) will be entirely dark.

Loganberries when ripe are dark red in color and soft. For shipping they should be light red and firm.

Blackberries when ripe are dark in color, plump and soft. When picked for market they should be entirely dark and plump but firm.

Both loganberries and blackberries are picked by breaking the core from the stem. In harvesting these fruits there is less danger of breaking the individual drupelets if the picker holds his fingers and thumb as nearly parallel to the sides of the berry as possible. The pressure is thus distributed over a greater surface of the fruit than if only the ends of the fingers are pressed on individual drupelets. The berry may be removed from the plant easiest by an upword twist of the thumb and fingers. Pickers should not fill their hands with berries before placing them in the containers, as such practice is almost sure to injure many of the fruits. While these points in picking may seem unimportant to the novice, they are part of the regular field practice in some of the most intensive berry growing sections on the Pacific Coast and are closely adhered to by the workers.

Berries harvested wet are not desirable for market. They cannot be handled without breaking the drupelets and decay soon sets in. Soft, wet or injured fruits should be sent to a barreling station, cannery, drier or juice factory where they can best be used.

Containers for handling the fruit for market should be clean, dry and solid. In wet or flimsy containers the berries become soft and unmarketable. Moldy cups, crates or trays are sure to infect the fruit. Soft or injured berries should not be placed in the same container for shipping with firm fruits, for they will quickly break to pieces and muss up the entire container. The fruits will sometimes mold on the plants; these should be removed and burned to avoid further infection of the field and of the containers.

Each picker should be provided with one or more hand carriers and a waist carrier if desired. A hand carrier is a tray on legs which holds ten or twelve cups (hallocks, baskets) in which the fruit is picked. A waist carrier is a small tray tied around the waist and contains two cups, one for firm and one for soft berries. When the cups are filled they are exchanged for empties from the hand carriers. The fruit should never be poured from one cup to another.

Hand carriers containing fruit should be kept in the shade of the plants or covered with a small cheese cloth tent, arranged over the top. Hand carriers when filled should be taken to the crate shed or shade provided for crates or chests. The fruit should always be protected from sun and dust after harvesting.

Berries are sold largely on appearance and quality. To bring the best returns they must reach the consumer in prime condition; that is, must look and taste their best. This only is possible when the greatest care is used all along the line from grower to consumer. From the time the fruit leaves the plant until it is offered for sale, it should be kept in the shade—cool, and free from dust, excess moisture or rough handling. If these things are kept in mind and our present practices of picking and handling improved wherever possible, the standard of the berries on the market will be considerably raised, prices made more stable and consumers pleased.

Government ships. The trunks were a foot or more in diameter and second growth trees four inches through already have grown from the stumps.

A contract has been let for making 45,000 grape stakes from a portion of the remaining locust trees. The wood lasts well in the ground, locust posts set forty years ago being still in good condition.

Enough oak firewood is cut from broken limbs and undesirable trees to supply the six families on the ranch and sell each year $1000 to $1500 worth at $11 for two 12-inch tiers.

The irrigation system is being improved in order to make larger and more economical use of water on the 900 tillable acres on the ranch. Two dams already have been constructed, one of which holds 6,000,000 gallons and the other 2,000,000. A third reservoir having a capacity of 10,000,000 gallons is being planned.

Three 40-acre hill farms are being [illegible] to [illegible] San Francisco [illegible] men rural homes where they [illegible] week-ends and enjoy country [illegible]. The building sites, to which [illegible] water will be piped, command magnificent views of Napa Valley. A young 10-acre orchard of apricots and prunes has been planted on each tract. Splendid oak and redwood trees, as well as many others, furnish shade in the summer and add much to the residential value of the land.

Melone's chief interest, as well as that of his capable wife, centers in four fine sons who are interested not only in agriculture but in music, mechanics, radio, Boy Scout work and many other good things. Their father is planning to take his summer vacation with a company of Boy Scouts at Inverness, considering this an opportunity to render service not only to his own sons, but to many other lads as well.

The Oak Knoll residence contains many fine paintings, books and art treasures, the collecting of which was a hobby with the original owner, R. B. Woodward, who improved Woodward's Gardens in San Francisco and built the famous What Cheer Hotel and the Mission Street Railway. His daughter, Mrs. Drury Melone, tells many interesting tales of pioneer days.—O. H. BARNHILL.

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Organization Key to Co-operative Success

(Continued From Page Three)

such action as they deem necessary, the 29 directors return home and report to the growers facts obtained and steps taken in association management. In each district meetings are held. In order to enable the advisers to keep in close touch with their membership.

Four hundred local committeemen constitute the last link in the chain which binds together all parts of the big Sun Maid family. These local workers are as evenly distributed as possible throughout the raisin country, in order that each community shall be represented.

Wrightson, working at night with other industrious Sun Maid men, has compiled a vast amount of raisin association data and arranged it in the form of charts, which show in graphic style just how this great organization functions. Each individual grower, by attending lectures at which these charts are shown, can acquire a comprehensive idea of each department and see how all parts are interdependent, like a big machine.

"When our members gain a better understanding of some of the difficult problems our officers are called upon to solve, we have learned that they do not find fault with the management," Wrightson points out. "I have been in this raisin game for 32 years, selling my crop for many years independently, before we organized. I know how poor market conditions were then and how much better they are now.

FAILURE OF FRUIT DEALERS

"Present raisin prices are low, but they are good compared to those in 1912, when we organized. Even at the 'way-below-cost' prices at which raisins then were sold, dealers were unable to move the crop, a large part of which was carried over to glut next year's market. And the total tonnage then was less than one-fourth what it is now."

In spite of the difficulties through which the Sun Maid Association recently has passed and the fact that present conditions are not altogether satisfactory, Wrightson is not at all discouraged over the outlook. In the face of low prices and unfavorable crop conditions, the membership last year was increased from 14,000 to 16,500.

To Ralph P. Merritt, new president and managing director of the Sun Maid organization, was left the difficult and thoroughly unpleasant task of prescribing the bitter medicine which the growers had to take during their refinancing and retrenching program to avoid collapse with consequent 'kill-backs", yet the surest way to start a riot in the raisin territory is to criticize this conscientious and fearless leader of producer forces.

"SUN MAID" CONVALESCING

"Raisin growers now realize the seriousness of the condition of their business even more fully than they did a year ago," explained Wrightson. "At that time, however, we didn't know just where we were 'at.' We knew something was wrong, but were unable to see how to extricate ourselves and our association from grave difficulties.

"Now we know just how sick we were, but we also know that we are going to get well. The reorganization of our association was remarkably successful. We are on safe financial footing and have more members than ever before, whose confidence in the management is good and getting better all the time.

"Growers are getting a better understanding of association problems and are taking an active part in helping overcome the numerous difficulties which beset the patch of the raisin from the time the vine is planted until it lands on the consumer's table, and money for the crop is in the grower's pocket."

Wrightson has a profitable 40-acre vineyard but has turned over the management of his grape farm to his son and is devoting all his own time to furthering Farm Bureau and co-operative marketing success. He believes in these projects with his whole soul and has the faculty of imparting confidence and enthusiasm to others.

Intercropping Offers Quick Returns

(Continued From Page Three)

spinach, lettuce, cucumbers, squash, melons, onions and sweet corn will prove profitable.

The potato is a staple crop which can be grown profitably in either a large or small orchard. In California this crop is quite largely grown as an intercrop in the San Fernando Valley for the Los Angeles market. One hundred sacks per acre are often produced, and as the crop is ready for the market in the early spring months good returns are received.

South of San Francisco in the Santa Clara Valley are grown 5000 acres of tomatoes, the majority of which are raised as an intercrop between tree rows. Seven to eight tons per acre is a good average yield. The crop is sold to local canneries at $12 to $16 per ton.

Spinach usually precedes tomatoes, and also is in demand both by the cannery and local markets. This crop is ready for harvest between the middle of March and mid-May. Six tons may easily be produced from an acre of ground. Spinach does not make a great drain on the soil for plant food and being ready for market early in the season may be grown under conditions where the moisture supply of the soil later on would not be sufficient for an intercrop.

Onions are another early crop which may be produced with a somewhat limited water supply. They are largely grown in California south of Sacramento, along the river, and are shipped by boat to the large markets of the State.

MELONS GOOD INTERCROP

Melons, cucumbers and vines in general are considered good intercrops. With proper soil and moisture conditions they are capable of giving good returns.

Among the perennial cultivated crops might be mentioned asparagus and rhubarb. These are grown in early sections to good advantage, although they require considerable care and an especially rich soil to prove profitable.

Where small fruits are grown the strawberry generally heads the list. While requiring an immense amount of work they are one of the best paying crops and have helped many fruit growers in solving the bread and butter problem until orchards came into bearing.

Blackberries, loganberries and raspberries, sometimes advised against on account of their susceptibility to crown gall and the fact that they require considerable moisture, are very important crops in sections particularly adapted to their culture. With a good co-operative association of berry growers in Sebastopol, 200 to 360 tons of berries are produced and sold annually. Most of them are grown between tree rows.

For the orchardist handling livestock as a side line, or where the market and soil conditions are not suitable for the growing of truck crops, such things as carrots, beets, mangels, field peas, corn and potatoes are grown and after the first few years, clover or alfalfa. Carrots furnish excellent stock food and are very profitable when grown for this purpose.

In growing any crop plenty of room should be left on each side of the tree row in order to avoid competition between the trees and the crop. Four feet is the usual distance, but for corn six feet is more desirable.

ORCHARD NEEDS COME FIRST

The greatest mistakes likely to be made in growing a crop between trees are forgetting or neglecting to keep up the fertility of the soil and being tempted to continue the practice of cropping too long. Intercrops, aside from the legumes such as clover or alfalfa—should not be grown, as a rule, after trees reach bearing age.

The primary consideration should always be the good of the orchard. If a crop can be produced without impairing the productiveness of the soil, well and good: otherwise, devote all the land to the trees, or remove the trees in order to have all the land for the crop.

Protecting Adohr Dairy Cows

THE example set by Merritt Adamson, manager of the Adohr Dairy, San Fernando Valley, in protecting his stock against possible infection with the foot-and-mouth disease is highly commended by officials in charge of the work of eradicating this destructive malady. As soon as he heard of the outbreak at Vallejo, Adamson posted his ranch with signs warning all visitors to keep away and has seen that this rule was obeyed.

A meeting of all employees was called and the seriousness of the situation explained. Every worker agreed to remain on the ranch until danger of the disease had passed. A phonograph, a pool table, books and magazines were provided for entertainment.

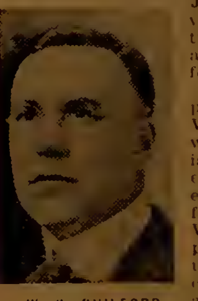
All pet stock was killed, except two dogs, which were kept tied up in the house. Adamson talks to his men by phone or through the fence, setting a good example by obeying quarantine regulations.

Adohr certified milk is produced by the world's largest herd of pure bred Guernsey cows.

HOME FARM HAPPENINGS

By ONE OF US

DRY PLOWING—Referring t[illegible] th[illegible] remarks on dry plowing [illegible] time ago, a reader at Reno, Nevada, who writes that he grew sweet potatoes, berries and other crops in [illegible] Jersey for [illegible] years, and who [illegible] ticipates [illegible] a citizen of California, says:



W. S. GUILFORD

"The Eas[illegible] pathizes [illegible] Western [illegible] where pre[illegible] is short [illegible] ern farmers [illegible] ence the s[illegible] ficulty at [illegible] We do not [illegible] plowing dr[illegible] unless th[illegible] cut both w[illegible] a disc harrow [illegible] a jointer o[illegible] Use heavy land roller and foll[illegible] few days with an acme harr[illegible]"

ALKALI WEEDS—This is t[illegible] son when the country is [illegible] ful with grass and flowers—a [illegible] ful time to see the country [illegible] land-selling operations to be [illegible] swing. In the alkali land are[illegible] Sacramento Valley there are [illegible] that quite clearly define th[illegible] where alkali is present. Before [illegible] land was put into rice, it was [illegible] to follow the lines of th[illegible] shown on carefully-made maps [illegible] growth of these little yellow [illegible]

PICKING A RAM—We [illegible] good example recently of [illegible] results of years of study [illegible] rience in the sheep busine[illegible] matter of selecting rams. A [illegible] from nearby county bought [illegible] selected two registered ra[illegible] making his choice some of th[illegible] he considered were: Form—[illegible] it, with the legs squarely set [illegible] the four corners of the body. S[illegible] ing sheep but not long legged [illegible] —dense wool, free from bla[illegible] and a good covering all over th[illegible] Body form—square, straight [illegible] with well filled hind quarte[illegible] bottom line, full heart girth and [illegible] thick neck. Character—that [illegible] define "something" about a ram [illegible] denotes breed character and a[illegible] transmit his good points. I[illegible] pleasure to see a man who kn[illegible] business at work.

FROST AND THE MOON—[illegible] were some cold nights about bl[illegible] som time but the "moon [illegible] right" for the frost to do damage [illegible] cording to J. T. Fagg, p[illegible] of the Butte City District.

"When frost comes in the [illegible] the moon, look out," says Mr. F[illegible] "But a pretty hard freeze won't [illegible] damage if it comes in the 'light' of [illegible] moon. The peaches, prunes [illegible] cots were not hurt at all [illegible] the Eureka walnuts in the [illegible] Orchard were not damaged. [illegible] English walnut bloom is th[illegible] sensitive to frost of any [illegible] cluded.

(Editor's Note: We f[illegible] science [illegible] support Brother Fagg's the[illegible] "weather man" would class it w[illegible] potato planting superstition, perh[illegible])

THE LAST DRY YEAR—T[illegible] citizen of the Butte City [illegible] is John Price Sr., who came [illegible] 1857. "The only total crop [illegible] have ever seen in the Sac[illegible] Valley was in 1864," says Mr. [illegible] "That year there was not enou[illegible] to make the Sacramento River [illegible]

"Ever since then this [illegible] been a regular producer; so[illegible] we raise big crops, other time[illegible] ones."

MACHINE SHEARING—H[illegible] some new "dope" on [illegible] shearing sheep. It is possible t[illegible] a band of range sheep very c[illegible] the machine and have co[illegible] suffering and less in the event [illegible] bad storm immediately following [illegible] shearing where there is no shelter[illegible]

And sheep shorn late in th[illegible] and very close might be [illegible] exposed to very hot weather [illegible] bright sun. All of which does [illegible] course, apply to f[illegible] m [illegible] there is ample shelter.

Harry Petrie makes a [illegible] his Colorado flocks of [illegible] young ewes—his bre[illegible] will be kept over [illegible] blades. The old ewes that [illegible] fattened and sold before they [illegible] shorn again are clipped with [illegible] machine getting every [illegible] possible. There may be a dif[illegible] of one-half to one pound [illegible] between blades and [illegible]

Putting Milk Goat Industry on a Cheese Basis

MANY MEN—and some women—have made good money in the milch goat business, but most of it has come from the sale of breeding stock. The bulk of the animals sold have gone to persons who desired a fresh, continuous supply of what a large and increasing number of physicians consider the finest of all foods for babies and invalids.

Milch goats, however, are such lovable little creatures and so easily cared for that many of their owners have been tempted to grow more of them than are necessary to supply the present goat milk market. The growers hoped, perhaps, that the demand for this delicious product would increase more rapidly than it has developed.

Looking at the millions of milch goats in Europe, whence came the present inhabitants of the United States, and the great popularity of these interesting animals, it is difficult to understand the slowness of the American people to accept this valuable milk. Our forefathers, however, did not bring with them milch goats and the present generation has long since been weaned from this particular lacteal product.

The average person in this country associates the word "goat" with the Irishman's backyard Billy, a disagreeable smelling scrub. Altogether different animals are the Toggenburgs, Saanens and Nubians, aristocrats of the Alps, where the product of their udders is held in high esteem.

Prejudice, whether political or of the variety which turns up its nose at an unfamiliar food product, is a hard thing to overcome, the process requiring long years of patient education. Mrs. Otto Lommel, wife of a prominent Napa County milch goat dairyman, had some experience along this line, at the State Fair last fall. Visitors were offered free drinks of goat milk, but many could not be persuaded to touch the nutritious liquid. Those who did smacked their lips and pronounced it "fine."

While waiting for the public to learn to use more goat milk, why not preserve the product, either in the shape of condensed milk, or cheese? A bright idea! Much the same difficulty, however, is encountered in selling evaporated goat milk as in disposing of the fresh article.

With cheese it is different. A strong taste and odor is possessed by many popular varieties of cow cheese, such as Limburger and Roquefort, therefore no difficulty is experienced in marketing rich, odoriferous goat cheese.

"Not if the consumer is aware of the nature of the product," qualifies Lommel, who has had large and successful experience in the manufacture of goat cheese. "I used to think that the picture of a goat head would be a fine trade mark for goat cheese, judging by the popularity of goat products in Europe. In this country it is different. Persons like goat milk and cheese when they try it, but many won't try it if they know what it is."

While conducting a bovine dairy in Napa County, Lommel was so successful in making goat cheese from his herd of 75 does that the College of Agriculture employed him to teach the subject at Davis. Last summer F. T. Heinz, a Baldwin Park (Los Angeles County) goat grower, sent for Lommel to operate the former's new goat cheese factory a mile north of the town. Near the factory there are 17 goat raisers who are milking 500 does. The milk from 200 more animals is used at the cheese plant. Ten more families are planning to join the Baldwin Park goat colony.

Two hundred gallons of milk per day until recently was the capacity of the plant, but this was doubled by the addition of a second 200-gallon vat, to take care of the spring milk flow. It is planned to increase the output until five tons of milk are processed daily. This amount of milk will make about 167 five-pound cheeses, it is estimated.

The milk is first heated to a temperature of 82 to 90 degrees, and then rennet is added to make it curdle. The amount of rennet—which is a liquid made from the mucous membrane of the stomach of a calf which has eaten nothing but milk—varies from one-third drop to one drop per pound of milk.

The whey then is strained out and the curd manipulated in such a way as to permit the lactic acid to get in its fine work, after which the curd is placed into metal cylinders about seven inches wide and five inches deep and the fresh cheeses pressed down with concrete weights of similar size. The time required for cheese to cure runs up to three months, depending upon the flavor and firmness desired.

Italians are very fond of a kind of hard cheese called "Romano," which is covered with oil, salt and black pepper. This cheese is used mainly with macaroni, being grated before serving.

It is impractical to go into all the interesting details of cheese making, but something may be told of the process which gives Roquefort cheese its peculiar flavor. This process was developed as a result of a loaf of bread accidentally being left in a cheese cave near Roquefort, France. The bread became inoculated with the cheese bacteria and molded. Experiments proved that this moldy bread could be used to transfer germs to fresh cheese. From the United States Department of Agriculture Lommel procured a tiny bit of Roquefort cheese culture—bacteria-laden substance—which was mixed with distilled water. By means of a small glass tube a few drops of this liquid was forced into newly baked bread, of which three kinds are used. The loaves are covered with a parafin coating as soon as they come from the oven and the inoculation holes sealed up with the same substance.

The bread molds in four to six weeks, after which it is dried and ground into fine powder. This powder is sprinkled over the cheese, into which holes have been punched to admit air, which enables the bacteria to give the cheese the taste and flavor so much enjoyed by lovers of Roquefort.

"French Roquefort cheese is cured in limestone caves, through which cool winds blow," explains Lommel. "In order to produce an article of equal quality in this climate, artificial refrigeration is necessary. A cold storage and ice plant is to be constructed in the near future to be used in connection with our cheese factory. This should enable us to make as good Roquefort as is produced anywhere.

"Originally, all Roquefort cheese was made of ewe's milk, there having been developed in Southern France a milking strain of sheep. This particular type of cheese proved so popular, however, that the supply of sheep milk soon proved insufficient to meet the demand. Cow's milk was substituted and most Roquefort cheese now contains a large percentage of this material. In Europe sheep and goat milk is considered much superior to that obtained from cows."

OTHER GOAT CHEESE PLANTS

A Roquefort goat cheese plant is in successful operation at Ettersburg (Humboldt County). Mrs. Fannie Branscomb, an Oregon woman, and Mr. Monchalin of Carson, Wash., are reported to be making a good quality of this article.

Several types of cheese are made at the Baldwin Park plant, including cheddar, Schanfigg, Belleiay, Neufchatel and Romano. A soft cream cheese called Mont D'Or ("Gold Mountain") also was made by Lommel in Napa County.

In order to meet market demands, some five-pound cheeses are run through a food cutter, mixed with pimiento and Chili peppers and molded into one and two-pound blocks. Some customers like a soft, mild cheese, while others prefer a hard, "nippy" article. Unlike cow cheese, goat cheese never is artificially colored.

CHEESE MAKING COST

The present cost of making a pound of goat cheese is estimated at 39 cents. It retails at 50 cents a pound, the Baldwin Park factory experiencing no difficulty in disposing of its entire output at this price. Large quantities are shipped by parcel post to distant customers. The demand is said to be growing faster than the supply.

Members of the Baldwin Park goat colony give 10 per cent of their milk to pay for having it made into cheese, which is marketed co-operatively. Feed also is purchased by this method, which results in a substantial saving. In February mixed hay was being bought for $29 a ton; alfalfa, $35; "rabbit" alfalfa, $40.

The following grain ration is recommended: Equal parts bran, beet pulp, cracked corn, rolled barley and feed oats, to which is added a small portion of cottonseed oil cakes or linseed oil meal.

"A profitable milk goat gives not less than six pounds of milk per day for ten months," asserts Heintz. "Various prices are paid for such animals. Thirty-five dollars is a fair figure, perhaps. Our colony is growing rapidly and promises soon to become an important industrial center and residence district."

A six-pound goat milked ten months out of twelve would yield a gross profit of $97.50, provided the milk yielded 12 per cent of its weight in cheese and the latter sold for 50 cents a pound and the factory took a 10 per cent toll. These figures look good to little landers who do not fancy fussing with chickens or bothering with berries.

"Cheese promises to be the salvation of the milk goat industry," points out S. A. Hall of *(Continued on Page 12)*

Such sires as this one have contributed to the upbuilding of California's important milk goat industry, which has been undergoing recently a trying period of readjustment. The successful establishment of cheese manufacturing is expected to solve the problem of finding a profitable market for goats' milk.

Most goat breeders make pets of their stock. The affectionate nature of the milk goat has endeared the little animals to thousands of owners. Some astounding production records have been made in California.

Above is shown the new goat cheese factory, recently completed at Baldwin Park (Los Angeles County) where a number of breeders have formed a colony devoted especially to this new industry.

GOOD BARNS for GOOD STOCK

Many New Buildings

DESPITE the foot-and-mouth disease epidemic, the livestock industry of California even now is developing along sound, conservative lines, with a view to its permanency as an essential part of our system of agriculture.

Far-seeing breeders, looking beyond the reaction which has followed the period of over-inflation, are laying their plans with confidence.

All reports to the contrary notwithstanding, farm construction has gone ahead steadily in California. Many fine new barns, as well as homes, dot the country-side. Any farmer desiring plans for special buildings may secure valuable advice and assistance by writing the Division of Agricultural Engineering, University of California, Berkeley.

Linking the old and the new West is this typical stock ranch in the foothills near San Ardo (Monterey County). In the old days the corral probably would have been constructed of poles. What a difference good lumber and white paint can make!

Milk Goat Cheese

(Cont. From Page Eleven)

the United States Department of Agriculture, who has been in California for the purpose of helping goat growers solve the cheese problem. "In isolated communities, where there is much good goat feed and no market facilities, milk can be converted into high-class cheese and sold at profitable prices.

"Goat cheese made by the College of Agriculture at Davis sells for 65 cents a pound, while the Humboldt article retails in Sacramento for 75 cents. The cheddar type, which sells for 60 cents, is similar to that made from cow's milk, the latter bringing only 25 cents. Next to mother's milk, that obtained from goats is the most easily digestible of all animal milks."

An inexpensive but substantial and practical type of horse barn and hay-loft for the general farm. No money wasted on frills—but such a building is an ornament to any ranch.

The Berylwood Stock Farm, Hueneme (Ventura County) has one of the finest and most modern groups of farm buildings in Southern California. The above view shows part of the equipment provided for the care of the pure-bred dairy herds.

All-metal construction, although rather unusual, has been used effectively on the great Timkin ranches in the Imperial Valley. The sheet metal does not cause discomfort through overheating because of the open sides.

What farmer would not take pride in a building such as this? Little touches in design indicate the hand of an architect. And when economy is not the first consideration, there is no question but that the pleasing effect is worth the extra cost.

This is the brood-mare barn on the Whitehall estates near Tracy (San Joaquin County). The box stalls open into a paddock, especially designed to prevent injury to the animals.

On the Delhi State Land Settlement are to be found many splendid examples of serviceable, artistic buildings constructed at minimum cost. This is the David C. Peters barn, with the D. L. Schuman place in the distance.

ORCHARD and FARM

LUTHER BURBANK, PHOTOGRAPHED AT HIS SANTA ROSA HOME SHORTLY AFTER HIS SEVENTY-FIFTH BIRTHDAY, WITH HIS LITTLE NIECE, JANE WATERS, AND BONITA, HER PET.—(International Photo)

JUNE 8, 1924

"Nothing Too Good for Hens," Says Armstrong

Birds Richly Repay Caretaker

JUST another story of a hard worker who regained his health and is accumulating wealth via the egg route. While exercising formerly neglected muscles, this erstwhile silk salesman makes good use of brains in managing his poultry plant.

—*The Editor.*

By O. H. BARNHILL

A DEEP pit, which resembles a basement excavation for a new building, is one of the first things that arrests the visitor's attention at Gilnockie poultry farm in West Arcadia (Los Angeles County). The purpose of the pit is explained when the proprietor is observed dumping into it a barrowful of refuse from the chicken yard, replacing the material with an equal quantity of freshly dug earth.

Armstrong believes it is essential to the health of his hens to go over his yards frequently with a fine-tooth rake, afterward sprinkling the ground with clean soil.

"Of course, it means a lot of hard work," he admits, "but that is the price of poultry success. No, that isn't the only 'health cellar' on this three-acre farm—I dig one every year. Yes, a good deal of fertilizer is buried where it can do no good, but if the rakings were hauled away there would be nothing left with which to fill the pits. Of course, more or less dirt is raked up with the droppings and other refuse; therefore, in order to keep the yards up to grade it is necessary to replace this soil."

Thoroughness is the keynote of Armstrong's methods. He spares no pains—nor himself—to do everything just right. Since genius has been defined as "An infinite capacity for taking pains," Armstrong is either a genius or a crank, depending upon the way his methods are regarded.

Twice a year the chicken houses are thoroughly sprayed with a disinfectant consisting of five gallons of petroleum and one quart of creosote. The floors, as well as the walls and everything inside the buildings, are given a good coating of oil, in order to destroy any lurking insect foes and prevent the entrance of others. In addition to these two sprayings, the poultry sheds are given an occasional "touching up" with a disinfectant.

CROWDING HENS UNPROFITABLE

Instead of using straw or planer shavings for litter, Armstrong utilizes clean sand, not only for the floors, but also the nest boxes. The latter must be made very tight to hold this material.

Four and one-half yards of sand, costing $2.75 per yard, are hauled into the buildings every six months, the total outlay for this purpose being $30 per year.

There are ten laying rooms, each 16 feet square and accommodating 110 hens. This amount of space usually is considered sufficient for 125 hens, but Armstrong finds he can get as many eggs from the smaller number, when the same sized room is used.

Two yards, 35x50 feet, accommodate the hens from each room, or unit. In one section of the plant half of the yards are south of the laying house, while in another and newer division the pens are all on the south side. The latter system is preferred, because of greater convenience and protection afforded the birds.

It has been found difficult to grow fruit trees in the chicken yards, therefore lath-covered shades, knee-high, are provided.

Half the yards are planted to Sudan grass, or barley, while the others are occupied, in order to furnish green feed and keep the soil sweet. The ground is plowed by hand, eight inches deep.

"Impossible!" Not at all—a second furrow is thrown out of the bottom of each one run. Yes, it's enough to make a man puff and sweat in sympathy, just to think of the hard, back breaking labor involved in this operation. Even Armstrong is getting tired of it—he is going to buy a baby tractor.

Outside barley patches and a small field of alfalfa supply the additional succulent forage needed. Water grass, the bane of rice growers, has a tendency to crowd out the alfalfa, unless carefully pulled out by hand.

All the richest manure is sold to orange growers, the income from this source amounting to considerable annually. The poorest manure from the 1200 hens is sufficient to keep the soil of the three-acre farm sufficiently fertile to produce maximum crops.

In one year six and one-half tons of casabas were grown, while another year an acre of certified protatoes brought $425. A considerable area is devoted to melons and potatoes each year.

The brooding of baby chicks is conducted with the same painstaking care which characterizes all of Armstrong's farming operations. The brooder room is 12 feet square, with a board floor 2 feet above concrete covered ground. This double floor, with air space between, is considered extra sanitary, well ventilated and proof against rodent pests.

VENTILATING CHICK ROOM

The chick room is ventilated by means of two air shafts, an intake and an outlet. The former rises two feet above the floor, while the latter starts at this height, on the opposite of the room, carrying off used air through the roof.

An opening in the side of this shaft, six inches wide and closed with a board sliding in a groove, has been found an excellent device—an invention of Armstrong's — for regulating temperature. Two windows, one on either side of the room, are fixed so they can be tilted in at the top, affording additional ventilation.

A large circular metal hover heated with a gas stove warms 1200 baby chicks. When the latter get too warm they go into an adjoining cooling room, 10x12 feet in size, where they learn to scatch for feed in straw.

When the chicks are eight weeks old the pullets are taken to small colony houses, 8x12 feet. These "half-grown hen houses" are models of neatness and convenience and serve to accustom the pullets to their permanent quarters.

As a result of the careful attention which Armstrong gives his hens, the latter are remarkably healthy and free from disease. They lay an average of 155 eggs each per annum, which is much better than the average commercial flock.

At the time of the writer's visit, middle of November, the egg yield was at the lowest point, 90 dozen a week. The peak of production comes the middle of April, when 390 dozen eggs per week were obtained from 1000 hens.

In addition to eggs and vegetables, Armstrong raises a large variety of fruit, having 55 trees and many berry and grape vines. Concord grapes are sold for eight cents a pound, bringing in some nice "side money." In addition to the common tree fruits, there are avocados, pomegranates, figs, persimmons and other rare varieties.

A fig tree three years old has made an enormous growth and during the past season bore three crops of fruit. The source of vigor of the tree remained a mystery until it was discovered that the roots had been robbing a nearby cucumber box. The latter was a foot wide and four feet long, four inches deep, and had been sunk in the ground, filled with manure and covered with lath, two inches apart.

NEW WAY TO GROW "CUKES"

The cucumbers were planted around the box, four inches away and six inches apart. Water was run into the box and allowed to seep out through holes which had been bored in the side pieces, carrying moisture and fertility to the cucumber plants outside.

The fruit orchard is kept as scrupulously neat and clean as the rest of the place, which is saying a good deal. When the present owner bought this three acres eight years ago it was overgrown with tall weeds, a veritable "howling wilderness." As soon as he had regained sufficient health and strength to do manual labor, he started in to clean up—and has been cleaning up ever since. The order and neatness of this little farm would delight a New England housekeeper.

"Eggs, fruits and vegetables form a profitable triangle that suits me to perfection," asserts the Scotch master of Gilnockie. "My land has more than doubled in value and over there in that line of trees they are boring for oil."

Neatness and cleanliness are outstanding characteristics of the Gilnockie poultry ranch, the owner being a firm believer in the old adage, "Order is Heaven's first law."

Low, lath-covered frames afford the hens shelter from the sun's ardent rays. Fruit trees in the poultry yards have not been found practical. Armstrong enjoys the work.

The straightness of these rows of newly planted winter lettuce well illustrates Armstrong's exact methods.

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
JUNE 8, 1924

Modern Progeny Credit to Cherry "Family Tree"

Interesting Ancestors of Our Cultivated Cherries—Method of Producing New Varieties—How Plant Breeder Accomplishes Cross Pollination

By LUTHER BURBANK

Written especially for ORCHARD and FARM—All rights reserved by the Author

THERE are two Old World species of wild cherries from which most of our cultivated edible varieties have been derived. They are Prunus Avium and Prunus Cerasus. The first usually is spoken of in a general way as the sweet cherry or the Mazzard; the latter is the sour or Morello cherry.

The varieties that have been developed from the first species produce rather tall, robust trees, covered with a red-brown bark, which, at least when young, are of a pyramidal shape. Their leaves are of a dull color and rather delicate texture, usually hanging limp on the younger shoots and taper at the apex to rather a long point.

Some horticultural writers have attempted to separate this type of cherry into three classes: First, the Heart cherries, represented by such varieties as the Governor Wood, Early Purple Guigne, Burbank and Black Tartarian, which are, as the name suggests, heart shaped, having usually a soft flesh; second, the Bigarreau cherries, rather closely resembling the Heart cherries in shape, but with firm flesh instead of soft, usually light-colored, represented by such varieties as the Windsor and Napoleon; and, the third class—the Dukes—often classed with the Morello cherries, for, like them, their fruits are rather acid instead of sweet—but probably derived from Prunus Avium, of which the Mayduke and the Reine Hortense are representative varieties.

In addition to these three classes are the poorer and more common seedlings, usually known under the general name of Mazzard cherries, which bear small, inferior fruits of various shapes and colors.

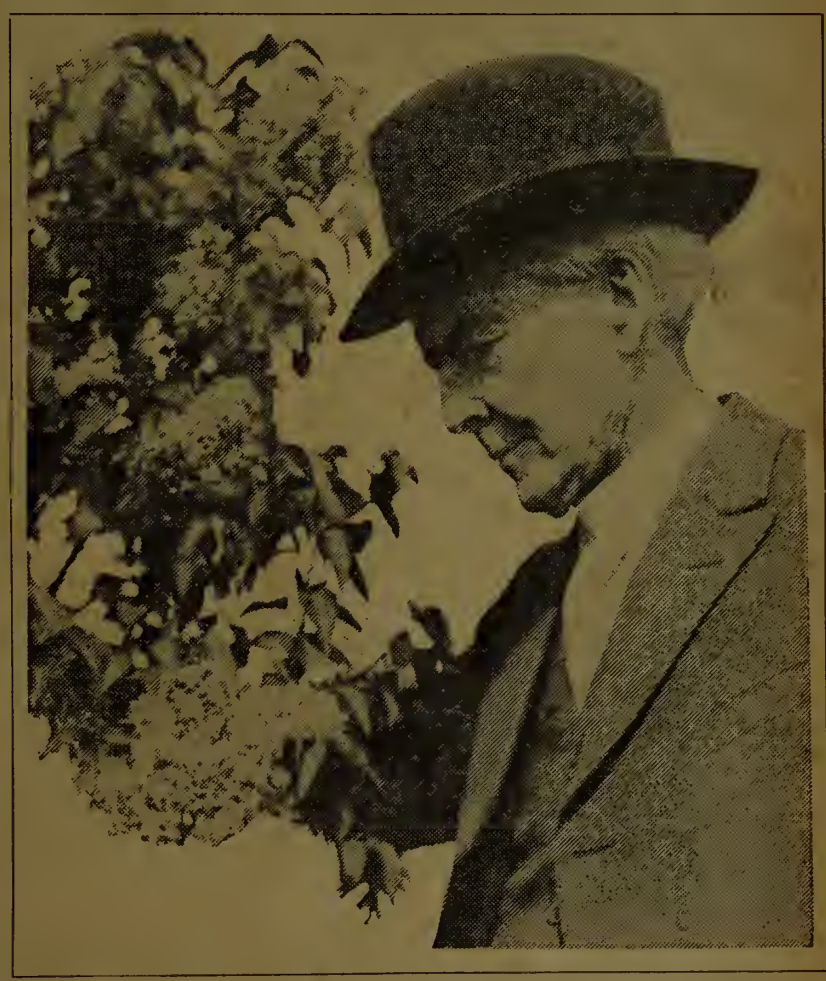
INTERMINGLING MAKES OLD CLASSIFICATION USELESS

The varieties developed from Prunus Cerasus are of rather low growth, forming round-headed trees with a grayish bark. Their leaves are proportionately broader than those of the sweet cherry group, abruptly short-pointed instead of tapering, rather stiff in texture and glossy instead of dull on the upper surface.

The cherries of this group have been segregated into two classes. The first class includes the Amarelles, with colorless juice, to which belong such varieties as the Kentish and the Montmorency; the second class embraces the Morellos, having a colored juice, whose representatives are Louis Phillipe, English Morello, and other similar varieties.

It must not be understood, however, that these classes, or even the original types, are not always readily distinguishable among our numerous cultivated varieties. The cherries now have become so thoroughly intercrossed that the lines of demarkation—not only between the different classes, but between the two original types themselves—have been almost entirely obliterated. So great and so complete has been this intermingling that any classification such as the one that has heretofore been in common use among horticulturists is wholly artificial, and of little value, if not absolutely worthless.

The "sour," or "pie-cherry," is about the only variety grown for commercial purposes in the Eastern States. Many varieties of these are cultivated to some extent in the East—especially in New York—for canning purposes. The sweet cherries are grown there almost entirely for home use. On the Pacific Coast the sweet cherries are cultivated extensively for commercial purposes, especially in Central and Northern California, and in Oregon and Washington. From California, and particularly from the Santa Clara Valley, large quantities are shipped fresh each year across the continent, and even to Europe.



METHOD OF CROSSING BY POLLINATION

Each season, fresh California cherries are offered in the markets of all the larger cities of America. This long transportation has demanded of the cherry, as it has of the apple and the plum, a firm flesh that will withstand considerable handling and jarring without being bruised; and, as was the case with the other fruits, new varieties have been developed to meet these conditions. The Mazzard seedlings are often used for stocks in grafting; but in California the Mahaleb cherry, which is a third European species—Prunus Mahaleb—is often preferred for this purpose. This species produces a dwarf type of tree, and is particularly preferred because it brings the trees into bearing earlier than the Mazzard; it is also generally believed that cherries are less subject to blight when grafted upon the Mahaleb stock.

The process of crossing cherries is almost exactly like that of crossing apples, pears and plums. The top of the blossom is cut off with a thin, light and very sharp knife, just before it opens, taking the petals about half way down and all the stamens, leaving the pistil.

The pollen, having been collected upon a watch crystal from the desired tree the day before, or earlier in the morning, is applied by lightly touching the finger to it, then to the stigma, taking care completely to cover the stigma with pollen.

After this is accomplished, some mark, like a string, a piece of cloth, or a tag of some sort, is tied to the bloom in order that the cross may be recognized when the fruit matures. This tag should be rather small, for if too large the wind may tear away the bloom.

It is necessary where the flowers come in profusion, as they *(Continued on Page 8)*

Luther Burbank's Home at Santa Rosa (Sonoma County), California

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY
By THE EDITOR

LET US COME DOWN TO EARTH!—There has been a lot of poppycock about "saving the poor farmer," and "protecting agriculture." There is such a thing as overdoing kindness and we have a glaring example of the evils of this tendency before us in America today.

A good many of us who felt in our hearts the principle of the thing was wrong have lent our support (or at least remained passive) in the promotion of all kinds of schemes and propaganda to administer artificial stimulants and restoratives that should never have been resorted to.

One of these is overextension of credit. Too much credit is just as bad for agriculture as too little! The man who is already in debt beyond the limits of good judgment and sound business principles is not helped by being invited to plunge in deeper. It is like trying to save a drowning person by throwing him a millstone for a life preserver!

THE TRUTH ABOUT FARM FAILURES—Much capital has been made of the high percentage of failures and foreclosures among farmers—particularly Northwestern grain farmers. A survey by the Federal Reserve Bank of Minneapolis is said to have shown that of 200,000 producers in the great wheat belt, 7 per cent were bankrupt or in imminent danger of losing their property.

Yet in the same period hundreds of merchants and manufacturers failed. Business has been "spotted" in all lines. Merely because of these failures it is not to be concluded that it is impossible to make money in merchandising or manufacturing. Had other lines been artificially bolstered up by some of the methods advocated by certain so-called "friends" of agriculture, no doubt the country in general would have been even less prosperous than it is today.

WHAT ARE THE FACTS?—The same investigators who surveyed the situation in the Northwest reached the conclusion that less than one per cent of the failures cited were among competent farmers and that actually the proportion was no greater than among banks and merchants. (We all know the Northwest was hit harder than any other district.)

If an inexperienced, incompetent rancher, insufficiently financed in the first place, gives up his attempt and moves to the city to become a consumer, is agriculture generally injured or benefited? If the "failure" finds industrial employment at good wages, is he better or worse off than if he had been lulled into a false sense of security by unsound extension of credit and price fixing?

WELL MEANING NOT ALWAYS WELL DOING—Granting that those who prescribe agricultural cure-alls have the best intentions in the world many of them have done the real dirt farmers more harm than good. For the impression has gained credence that all farmers are in a bad way and that agriculture generally is unprofitable.

What has been the result? Farm land values have suffered a sharper reduction than was justified by a period of temporary market depression, even legitimate credit has tightened because of lack of confidence; overproduction in several lines has been artificially encouraged. Many farmers in their zeal to "save" undeserving breth- (Continued on Page 8)

WHAT'S NEW? Keeping Abreast of Agricultural Progress

Broody Hen—Fireless Hover

A PROFITABLE use for the broody hen has been found by Mrs. Lois F. McQuay, Fresno poultrywoman, who uses the bird to furnish heat for incubator hatched chicks. The hen is placed in the center of 200 chicks, which are kept warm by the heat of the old bird's body. The chicks may get as close or as far from the hen as they wish, but the latter is prevented from moving around.

Farm Bureau Radio Service

THE American Farm Bureau Federation is broadcasting two regular weekly programs from the Chicago Westinghouse station, KYW, at 7:20 o'clock, central standard time, Tuesdays and Friday evenings. General farm subjects are treated Tuesday nights, while on Friday—in addition to these—boys and girls club work and "Among Our Neighbors" is featured. Copies of any of the talks may be obtained by writing to the Federation at Chicago, 58 East Washington street.

Million Saved by Rate Cut

IT IS estimated that $1,000,000 a year will be saved to California shippers of fruits, vegetables, butter and eggs as a result of the recent 10 per cent cut in express rates, which is to take effect on or before June 21. The new rate from San Francisco to New York is $13; the present rate, $14.62.

For the purpose of computing rates, the nation is to be divided into three districts, as follows: From the Mississippi to the Pacific Ocean, Mississippi to the Appalachian Mountains and from the latter to the Atlantic Ocean.

Northwest Fruit Growers Unite

CO-OPERATIVE apple marketing associations representing 8000 carloads of fruit in the Yakima, Wenatchee, Spokane, Mosier and Hood River districts recently formed a central agency for the purpose of co-ordinating and directing the efforts of local organizations.

A sales organization is to be maintained in all the principal apple markets of the world, sales information assembled and disseminated, advertising administered, supplies purchased and much similar service performed.

Office Workers Drink Milk

LAST year the Metropolitan Life Insurance Company used in its home office 3649 quarts of cream, 357,056 quarts of milk, 16,920 quarts of condensed milk and 19,200 quarts of evaporated milk, not to mention 91,246 quarts of ice cream.

It not only serves milk with the regular daily luncheon to its 7425 office employes, but it maintains a "milk room," where at 11 o'clock each morning and 3 o'clock in the afternoon such employes as have been recommended by the examining doctor for additional nourishment get an extra serving of milk and crackers. Last year the number of persons served in the milk room averaged 276 twice daily and they put away some 66,010 bottles of milk.

Stockmen Spread Disease

THE most serious obstacle in combatting the foot and mouth disease is the carelessness of many livestock owners in admitting cattle buyers and other owners to their premises, according to Dr. John H. Mohler, chief of the Bureau of Animal Industry.

Quarantine guards, though sufficient in number for enforcing all reasonable quarantine measures, obviously can not control the movements of all persons. In several instances the disease has appeared soon after cattle buyers from an exposed region visited farms that were at a safe distance from nearest infection. In one instance it was necessary to quarantine an entire county because infection had appeared as the result of this practice.

Co-operative Dehydration

THE Tulare County Farm Bureau is considering the erection of an 11-ton prune dehydrator at Visalia to take care of the crop of numerous small growers. Members of the California Prune and Apricot Growers' Association are taking a leading part in this co-operative movement.

While the superior advantages of artificial drying generally are realized, few growers have enough fruit to justify the erection of a dehydrator, and custom drying often is unsatisfactory. A community dehydrator is believed to offer a solution of the situation.

The association warehouse at Visalia, although the largest in the State, having 5000 tons capacity, probably will prove too small to pack the 1924 crop, judging by present crop prospects.

Settling Oregon Farm Land

THE Oregon State Land Settlement Commission has started a State-wide movement to increase agricultural development of the State. Prospective settlers are to be hand picked at the source of origin, as far as possible, and every effort made to see that they make a profitable purchase and afterward succeed in farming operations.

Improved farms are to be listed with a central committee, which will be supplied with detailed information concerning the properties offered for sale. Essential facts concerning grazing and undeveloped agricultural land also will be furnished, especially logged-off areas, which cover millions of acres in the western part of the State. Surveys are to be made of reclamation projects not fully settled and those which it is proposed to develop.

Milk Ad Reaches Millions

RECENTLY a prominent life insurance com[illegible] advertised the value of milk as food in 23 [illegible] ing national magazines, having a total circulation of 17,000,000.

The advertisement states this prescription—"T[illegible] lac purum (pure milk) freely and often, with m[illegible] and between"—is worth several times $219,0[illegible] the sum spent annually in the United Stat[illegible] patent medicines.

"This advertisement which cost somewher[illegible] tween $50,000 and $100,000, shows the broad v[illegible] of a life insurance company in thus helping edu[illegible] the American people to better health," points [illegible] M. O. Maughan, secretary of the National D[illegible] Council. "Life thus will be prolonged and p[illegible] made more healthy as a result of using more [illegible]

Rural Churches Losing Out

AS THE number of rural churches has incr[illegible] the percentage of farmers attending them [illegible] decreased, according to Dr. J. J. Galpin, who [illegible] been investigating religious activities in country [illegible] tricts for the U. S. Department of Agriculture.

There are ten times as many churches in pr[illegible] tion to the population in some rural districts [illegible] there are in New York City, yet the percentage [illegible] attendance is lower in those country districts [illegible] in the metropolis. In other words, the r[illegible] in some farming communities have ten times [illegible] many churches as have city folk, yet fewer [illegible] religious services.

Only one farmer in five goes to church [illegible] age. The increase in tenant farming and of for[illegible] born population and church building on the b[illegible] denominational competition rather than r[illegible] are some of the reasons why farmers do not [illegible] church more generally, according to this auth[illegible]

Forecast Electrical Storms

IT HAS been found that two-thirds of the electrical storms can be discovered by Forest Service l[illegible] outs and reported by phone to fire guards at l[illegible] six hours before the storms break and the fi[illegible] started. Nearly all the rest can be reported [illegible] least one hour in advance.

The lookout often can distinguish betwee[illegible] storm whose bolts are striking the earth and [illegible] one in which the lightning is confined to the [illegible]

If three-fourths of the bolts are harmless [illegible] chances are very good that the lightning will [illegible] no fires: if half or more of the bolts are str[illegible] the ground the chances are equally good that t[illegible] will be considerable work for the fire fighting [illegible] ganization.

As a result of determining the foregoing facts [illegible] Forest Service is preparing to mobilize fire fi[illegible] whenever lookouts consider such action n[illegible] when electrical storms are forecast. By this [illegible] it is expected that the number of forest fires st[illegible] by lightning will be materially reduced.

THEY SAY
"Annual Drives Unnecessary"

FELIX LANDIS

FELIX LANDIS
Executive Secretary, San Diego County Farm Bureau

HERE in San D[illegible] County we have h[illegible] just one Farm Bur[illegible] membership campaign [illegible] seven years. Six years [illegible] we discontinued the annual "drive"; yet we have increased from 800 to nearly 1400 members.

One factor in our success has been, no doubt, the practice of accepting memberships for one year "from date," no matter when received. We keep a file which automatically brings to [illegible] the names of members who should be [illegible] for renewal each month. In this way we ha[illegible] a small number to deal with every thirty days and by concentrating on those who do not [illegible] new immediately, we keep a large per[illegible] with us.

Some of the county organizations [illegible] a practice of accepting part-time [illegible] that is, those which are paid up in [illegible] only six months. Frequently the State [illegible] then gets nothing out of them [illegible] [illegible] for the balance of the year. We [illegible] only full-time memberships and forward the amount due the State organization [illegible]

We are fortunate in having [illegible] who [illegible] their business [illegible] members and to secure new ones. [illegible] new members are [illegible] by old members who bring them to meetings or [illegible] demonstrations. It is surprising [illegible] newcomers visit the office and apply for membership. This is [illegible] in many [illegible] favorable comment they have heard from those who have been [illegible] with the [illegible] for some time.

No, we do not [illegible] in annual "drives," particularly when conducted with [illegible]

Fashion Favors "Fur" From Karakul Lambs

California Sheep Breeder Sees Increasing Opportunity for Profit in Producing Black Lamb Skins—Millions Now Imported

[Editor's Note—Although unwise exploitation in some cases lax business methods [illegible] given the Karakul sheep a "black [illegible]" in parts of the West, our correspondent, whose letter we publish below, insists [illegible] a great future for this breed in [illegible]. The growing demand on the [illegible] American women for "Caracul" [illegible] at high prices would seem to [illegible] judicious expansion of this infant industry.]

"KARAKUL—a fur-bearing animal," but how different from the wily denizens of the forest that are prey to the [illegible]er's sagacity!

The Karakul "fur" (and it is the [illegible] whether spelled with a "K" or a "C") is the tightly curled coat of a young lamb. Skins of high quality frequently command high prices.

PROUD OF HER "CARACUL" FUR

An advertisement of a fur store recently carried a large announcement, "Caracul, the Fur Approved by Fashion," and quoted a "Fine Baby Caracul Wrap, $2450"; many Caracul coats are much higher. An article in The Breeder's Gazette of July, 1923 states the value of skins varies from $5 to $30 each, and that single skins have sold as high as $60.

Milady gives little thought to the source of supply of the raw material, but she is buying Caracul fur in ever-increasing quantities; in fact, the demand is so great that large numbers of skins from other animals are [illegible] used to make the lower-priced imitation Caracul garments. (It is even whispered the lowly rabbit is a frequent contributor.)

The native habitat of the Karakul sheep is in Bokhara, Central Asia, under the domination of Russia). Some of these sheep have been imported into the United States and some of their descendants are in California producing little lambs of "Sun-fast" black.

ENORMOUS NUMBERS IMPORTED

Karakuls have been bred in Bokhara for generations and millions of lamb skins are exported to the United States annually. The mature sheep usually are grayish-white, with black [illegible]s and face, but often mature animals are black all over. Their lambs when born, however, are all jet black, with short, curly hair. When the lambs are not to be kept for breeding purposes they are killed before three days old for their valuable furs.

The color of the lambs changes rapidly to brown, followed by gradual fading to the white of their parents.

Karakul sheep belong to the fat-tailed class, of which there are a dozen or more varieties found throughout Russia, Persia, Syria, Palestine, India and Greece. All of these varieties produce lambs with black, curly hair which is used for fur. Some of the fat-rumped breeds also produce such [illegible].

Lydekker in his book, "The Sheep and Its Cousins," mentions the Bokharan or Astrakhan Dumba fat-tailed sheep which produces lambs having [illegible] with jet black, closely pressed, [illegible] locks.

KARAKUL NOT A PUREBRED

The Karakul is not a pure-bred in the sense that we know our registered animals. While they have been [illegible] in Bokhara for years, no records [illegible]res or of production have been [illegible] other than the doubtful memory of the shepherds. New blood is frequently introduced in entirely different [illegible] of sheep and photographs of [illegible] of Karakul sheep in the National Geographic Magazine show great variation in type and color, as well as [illegible] variation in size also.

[illegible] to Robert K. Nabours, [illegible] in the above-mentioned magazine, the Karakul sheep contains the [illegible] of every breed in Central Asia. [illegible] Kirghiz mutton sheep [illegible] placed among the flocks [illegible] vigor, although it was [illegible] that they produced a [illegible] of fur lamb.

[illegible]

Successful fur production from Karakuls means years of careful selection and keeping of accurate records. A buck, obtained from an importer and typical of the native type, may be bred to fat-tailed, coarse-wool ewes. His lambs will be all black, with short, curly hair, varying in quality as might be expected, but with the inherent possibility of producing the highest type of marketable fur.

When we think of the unknown blood that flows in the veins of these sheep, put there by years of breeding by the shepherds of the Far East, it makes the regular methods of the ordinary breeder seem simple by comparison.

The ultimate value of the buck is in the lambs he produces and in the blood he can transmit through them. If the breeder saves all of the ewe lambs (which of coarse contain 50 per cent of their sire's blood) and breeds these back to the same sire, the next crop of lambs will contain 75 per cent of his blood. These breeding operations may be carried on until eventually the herd will be practically 100 per cent pure. Then by careful selection for fur qualities alone, a valuable herd should be obtained.

This would be inbreeding with a vengeance, but numerous experiments have been carried on by Government stations and countless generations

It is said Karakuls are much longer-lived than ordinary sheep and that their teeth are seldom worn down. They are remarkable rustlers and keep fat on almost anything in the way of weeds. It is said they will thrive where a goat will starve. They will eat almost any kind of tree leaf, even the strong eucalyptus leaf.

The somewhat popular impression that lamb skins are obtained mostly from unborn lambs, the ewes being slaughtered for this purpose, is entirely erroneous. If a pregnant ewe dies, the lamb skin is saved, of course, but otherwise skins are taken only from naturally-born lambs.

Extremely high prices have been asked for Karakul breeding stock—prices not at all justified—and this has tended to prevent extensive breeding operations. In Everybody's Magazine of October, 1919, an article stated that "pure-bred" Karakul rams command up to $5000 each, and half-blood rams sell for about $500. However, there is enough Karakul blood in the herds of small breeders to enable others to obtain their start, and by a few years of careful scientific breeding very soon to supersede the careless, ignorant methods of the shepherds of the Far East. Experiments in crossing Karakul bucks with native ewes have shown good results, but show clearly that the so-called Karakuls were no more uni-

California Karakuls

Above—Ewes and lambs.

Below—Close-up of black lambs, showing tightly curled fleeces.

have been produced from a single pair.

To a careful breeder the prospects of profits are large. Karakul fur now is more popular than ever. A representative of one of the largest fur companies in the State told the writer recently that Caracul fur never was in such great demand as it is today and that they expect this demand to increase yearly. He stated good Karakul skins are worth $20 each at the present time.

Mature Karakuls produce a long, coarse wool, shearing about the same number of pounds as the Merino. Ordinarily the wool is sold with other types at the same price. However, it is my belief that special markets can be found where the long, coarse product can be marketed at a much higher price than ordinary wool. The wool (or hair as it really is) is used for artificial hair on dolls, etc., and if clipped only once a year, reaches a length of a foot or more in many instances.

The wool from the Caracul is the basis of all Oriental rugs that bring such fabulous prices in this country, such as Bokharas, Persians and Afghans. It is ideal for blanket weaving and there is no doubt but that if production were in sufficient quantity, it would bring a much higher price than ordinary wool.

As a mutton sheep, this is the type used all over Asia and Karakul lamb has no superior in the American market. Quoted letters from Armour & Company state that Karakul lambs "are of very good quality, giving a good yield and making a very attractive carcass. Lambs seem to be devoid of the strong mutton flavor that is so often objectionable and on the other [illegible] in [illegible] flavor and are [illegible] of the [illegible]."

form in their offspring than if we crossed a bunch of Shropshires with Kansas, Wyoming or Iowa rams. In other words, the only pure-bred Karakuls will be those bred by the American farmer.

Since the Bolshevists have overrun Russia, large numbers in fact, nearly all of the native sheep have been slaughtered, and doubtless that source of Karakul importation will be entirely shut off.

Differing greatly from other agricultural products, overproduction of which has occurred in nearly every line, Karakul skins find a ready market, with the demand rapidly increasing, and it is up to the California farmer, where conditions are ideal, to produce these sheep on land little suited for other purposes, where they will thrive. The future indeed seems bright for the Karakul breeder.—R.C.G.

What to Feed Young Poults

CLARK MERCER, Chico, wants to know why so many of his young poults get sick and die. Improper feeding probably is the reason.

The first two days poults should not be fed. After that they should be fed very little, but should be made to hunt for worms, greens and other feed. In case natural feed is scarce, give the following ration:

Hard boiled egg chopped fine and cornbread crumbs the first week, then whole wheat and hulled oats. Follow with equal parts of whole wheat, cracked corn and pinhead oats; then feed cracked wheat. With any of these feeds skimmed milk or buttermilk could be given with great advantage.—W. J. DRYDEN

Practical POULTRY *Pointers*

By W. J. DRYDEN

PREVENTING LEG WEAKNESS—Cod liver oil and direct, unfiltered sunlight are cited as reliable preventives of leg weakness of chicks. In order to give the chicks the benefit of sunlight, they should be allowed on the ground as soon as their condition and the weather will permit. There is still some question about the best method and amount of cod liver oil to feed. In supplying the chicks with sunlight in the brooder house the danger of toe-picking is increased.

FIGHT SUMMER PARASITES—Warm weather means that unless great care is taken, mites, lice and other poultry parasites soon will gain control of the flock. It would be well to examine the perches and dropping boards at least once a week for mites and to examine some of the hens as often as possible for other parasites.

OIL AS POULTRY HOUSE SPRAY—Oil drained out of the crankcases of automobiles makes an excellent spray for poultry houses, or can be used to paint the perches and dropping boards. It can be secured from most garages without cost by furnishing them with containers.

GAME COCK AS POLICEMAN—After the pullets and cockerels are separated, one of the biggest problems in the management of the cockerels is to prevent loss from fighting. A good game cock, properly trained to fight, and placed in the cockerel yard will prevent most of this danger. The game cock will mix in any fight that is started and can soon prove himself the boss of the yard and keep order without breaking the spirit of the other birds.

TO RAISE BROODY HENS—The best way to raise a strain of broody hens is to breed from those of the non-setting strains which make a habit of going broody. This is only one of the many factors that can be used this time of year in culling the breeding flock.

EGG-ADVERTISING NEEDED—There seems little danger of overproduction of poultry products in the United States, at least during the next 50 years. The biggest problem is to educate the public to eat more eggs. At present we eat only a small fraction of an egg a day on the average, while we should be eating two or three. The hens are not laying nearly enough to meet the requirements of the nation. The increase in production is not more than keeping up with the increase in population—much less furnishing the additional number that could and should be used.

POOR HATCHES EXPLAINED—Poor hatches in many parts of the State can be accounted for in several ways. The condition may be merely a coincidence. Again, lack of rain in some sections and too much dry air and not enough moisture may have been a cause.

A PLACE FOR EVERYTHING—Much time would be saved on the poultry farm if everything had a place and was put in that place. When a house is closed up or any equipment used it should be cleaned and put in shape for the next time.

KEEP YOUNG STOCK GROWING—There is a tendency to slack up on the care of growing stock after they are put out on range or are old enough to get along without heat. They need plenty of fresh water, greens and good feed during the growing stage, as at any other period.

LOSS FROM FERTILE EGGS—It is estimated that California loses more than a million dollars a year due to chick development in market eggs. It is not always possible to keep the eggs under 68 degrees F. but by removing the roosters from the pen as soon as possible a large part of this loss can be prevented.

IDAHO FORGING AHEAD—Idaho, with her new poultry producers' organization and egg-laying contest, is making rapid strides as one of the Northwest's leading poultry centers.

A SALE

of Genuine Hand Beaded TUSSAH

SILK Dresses

$3.98

BEAUTIFULLY HAND BEADED

Yes, we mean it, the price is only $3.98! Undoubtedly the biggest bargain sensation in years! A bewitchingly beautiful new style genuine Tussah Silk Dress, richly beaded and elegantly finished in every way. Most amazing offer ever made—don't miss it! Be quick! They will go fast!

Send No Money!

Richly made of fine quality genuine Tussah Silk, soft and shimmering—an ideal material. A striking feature is the elaborate beading—pretty bugle beads in rich color tones set in a most tasteful and elegant design. Self material narrow sash. Fashionable kimono length sleeves with slashed cuffs. Round neck; tailoring throughout is perfect, you will be delighted with the workmanship. The style is one piece, becoming to all ages and figures. HURRY! your order—no money now. Pay only on arrival special sale price $3.98 and postage. If after try-on you don't think it the biggest bargain of your life, your money back. COLORS—Navy Blue, Tan, Natural, Brown or Black. SIZES—Women's 32 to 46 bust: Misses' 14 to 22 years.

A Style Fresh From Paris

Money Back Guaranteed

INTERNATIONAL MAIL ORDER CO.
Dept. D-1179 Chicago

Mineralized Water Routs Chicken Lice

No dusting or spraying. Birds delouse themselves. Amazing lice remover keeps birds always lice free without the poultry raiser doing any work—simplest, easiest and best method ever discovered.

Lice Tabs, is dropped in the chicken's drinking water. It comes out through the oil glands and every louse or mite leaves the body. No injury to hatchability or flavor of eggs or meat; is harmless to chicks and does not affect the plumage. A few days' treatment at the start and then a little in the drinking water each month is all that is necessary.

A Trial Costs You Nothing

To introduce Lice Tabs, the [illegible] is making a special guarantee offer of two large, double strength $1.00 packages for the price of one. Just send your name and address, and pay postman $1.00 and postage on delivery. If after 30 days' trial you are not absolutely satisfied, your money back quick. Write today to Lice Tabs Laboratories, Dept. 11[illegible], 8[illegible] S. Wabash Ave., Chicago.

PLEASE MENTION THIS PAPER WHEN YOU ANSWER ADVERTISEMENTS

Baby Beef—More Meat to Acre

Selling Younger Livestock Would Increase Carrying Capacity of Farms and Pasture Lands

By R. F. MEAD

Division of Animal Husbandry, University of California, Davis

APPROXIMATELY 75 per cent of the acreage of California is producing crops of some kind that are suitable only for livestock. This includes a vast amount of grazing land, national forests, and land devoted to the production of hay and forage crops. Beef cattle are raised on much of this land. At the present time California has a beef cattle population of about 1,220,000 as compared with 1,546,000 in 1910. In 1870 California had for each human inhabitant in the State 1.91 beef cattle. Today she raises but .37 of a beef per person. The curves for the human population and the beef cattle population run in opposite directions.

There are several reasons for this. First, much of the better part of the grazing land is now under cultivation; second, the grazing lands have been

Boys' and girls' club work has done much to demonstrate the advantages of marketing younger beef. This breeder of the future captured an attractive prize with the animal shown.

overstocked and their carrying capacity lowered; third, the quality of our cattle in some sections, according to some California cattlemen, has actually gone downhill; and fourth, the marketing of younger cattle has not taken root as rapidly as it might. This means that California might very profitably increase the quality of her cattle and the carrying capacity of her ranges. Grain or hay might be fed to more cattle or at least supplement pastures and cattle might be marketed at an earlier age. It is with this fourth point that the remainder of this article will be concerned.

In order to illustrate, a unit of land will be considered sufficiently large to maintain 100 head of cattle. What should be the policy in marketing cattle of various ages in order to turn off the greatest number of pounds of beef annually?

Suppose cattle of various ages are marketed up to and including three-year-olds. Now, assume that the calf crop is only 75 per cent and the calf crop is marketed each year. Under such a system 100 cows could be kept on the land as the calves would be marketed before they were old enough to consume any considerable amount of feed. If 75 calves were sold averaging say 356 pounds, 26,250 pounds of beef could be marketed.

If the policy were to sell yearlings, but 58 cows with calves and 42 yearlings could be pastured on the unit. These 42 yearlings might weigh on the average about 550 pounds and would total 23,100 pounds of beef per year. If twos were to be sold but 41 cows with their calves, 30 yearlings, and 29 twos could be kept. The twos would average about 700 pounds and total 20,300 pounds of beef.

Lastly if threes were marketed, 33 cows with their calves, 24 yearlings, 23 twos and 22 threes could be run. The threes would average about 800 pounds and total 17,600 pounds of beef. There would then be a difference of 8650 pounds of beef per year to be marketed between the calves and threes, in favor of the calves.

The figures used here are average figures. Many cattlemen can grow cattle weighing more than this, which is all the more in favor of the younger cattle. The discussion, furthermore is from a feeder rather than fat cattle basis. Such a system as this means a quicker turnover on invested capital a thing which is much needed in the livestock business. Many progressive cattlemen in the Southwest already are using this principle as is borne out by the increasing number of calves to be found going to the corn belt and the central markets each year.

While You Are Reading

this page your neighbor is reading it, and his neighbor and his neighbor and so on up and down the highways through all of California. More than 300,000 growers receive ORCHARD and FARM with either the San Francisco or Los Angeles Examiner each Sunday and they read through the magazine carefully just as you do for the practical farm news it contains.

Advertising in ORCHARD and FARM will sell your baby chicks, used tractor or whatever you have to offer California growers.

Figure for yourself the cost of advertising in all the other California farm papers, then add up the circulation and compare the result with the circulation and line rate of ORCHARD and FARM.

Take advantage of the low rate and thorough coverage of ORCHARD and FARM to sell your products to the California agriculturist. See classified rate page eight or write the ORCHARD and FARM office for detailed information.

Prevention of Black Head

MRS. C. M. HOWARD, American Fork, Utah, wants to know how to prevent and cure black head in young turkeys.

In order to prevent this disease, raise the young poults from eggs hatched in incubators which have been cleaned. Avoid contact between poults and older turkeys and follow all sanitary practices possible. It will be well to give sour milk or buttermilk and restrict the amount of grain and feed no mash or water.

It is claimed by some California breeders that tincture of ipecac administered in five-drop doses three times daily proved a valuable treatment for visibly sick birds.—W. J. DRYDEN.

Cause and Cure of Canker

MRS. DANIEL T. HORNE, Napa, inquires concerning cause and cure of pigeon canker.

If your pigeons have canker it is likely that it was caused by poor methods of care and unsanitary conditions. Keep the birds in clean, dry draftless buildings and remove all affected stock. Use epsom salts in the drinking water, followed by potassium permanganate.—W. J. DRYDEN.

[Editor's Note: Some pigeon [illegible] attribute canker also to the use of musty or low quality feed.]

Unless you are reading regularly our "Farmers' Classified Market Place" you are missing one of ORCHARD and FARM'S most valuable and interesting features. (Page 8.)

Iowa Poultry Ration

IT IS interesting to compare m[illegible] advocated by California po[illegible] authorities with those prevailing [illegible] other parts of the country. The Poul[illegible] try division of Iowa State College [illegible] issued the following instructions [illegible] feeding:

Scratch grain is mixed the[illegible] and fed in a deep litter of str[illegible] fodder. Two-thirds of the day's [illegible] is given at night, the other third [illegible] the morning.

One hundred hens, when [illegible] will eat 13 to 15 pounds of scratch [illegible] each day.

Mix dry mash thoroughly and al[illegible] ways keep a supply in the self-fe[illegible] Feed green food at noon. Change [illegible] drinking water at least once a day.

Replace the scratching litter i[illegible] hen house as soon as it becomes d[illegible] filthy or too dusty.

The average hen eats about [illegible] pounds of oyster shell a year.

The scratch ration recomm[illegible] consists of 200 pounds whole corn [illegible] pounds whole wheat and 100 p[illegible] of whole oats (or in case no wh[illegible] desired, just the corn and oats).

Ground corn, 100 pounds, gr[illegible] oats, 200 pounds, gluten, 100 po[illegible] and tankage, 75 pounds, is re[illegible]mended by Iowa College to go w[illegible] the first scratch ration and wi[illegible] second scratch mixture. 100 po[illegible] ground corn, 200 pounds ground [illegible] and 100 tankage is recommended.—[illegible] J. DRYDEN.

Curing Chick Dysentery

MRS. W. P. VANDERGRIFF, [illegible]ton inquires regarding the [illegible] and cure of chick dysentery:

Dysentery of young chicks is c[illegible] by improper food, water or housing [illegible] by the birds being chilled.

The first step is to determine w[illegible] is causing the trouble. Is brooder [illegible] regular? Do the chicks receive pl[illegible] of fresh water or milk? Are the d[illegible]ing fountains and feed cont[illegible] clean? Is your building free from [illegible] while admitting plenty of fresh air [illegible] has it dry floors? Are you feed[illegible] well balanced ration of good q[illegible] If the chicks are lacking in any [illegible] these you can supply the remedy.

Remove the sick chicks and [illegible] and spray the house. If possible p[illegible] up the yards or disinfect them by [illegible]ing around the house or sprink[illegible] lime on the ground.

Add epsom salts to the drin[illegible] water for an hour or two a day [illegible] several days, or mix it with the [illegible]

Three grains of subnitrate of [illegible]muth, one grain of powdered ci[illegible]mon or cloves and three grains of p[illegible]dered willow charcoal given twi[illegible] day mixed with food has proved [illegible] rather successful dysentery treatm[illegible]

It is not usually advisable to f[illegible] table garbage to young chicks. [illegible] food can be fed to the older chi[illegible] without harm. If you are car[illegible] you can secure a good com[illegible] chick mash and chick scratch fe[illegible] follow directions you will ex[illegible] little trouble in feeding. Cracked w[illegible] and corn grits make excellent scr[illegible] feed. For mash, bran use cornm[illegible] mill run, charcoal, bone m[illegible] scraps and dried buttermi[illegible] plenty of greens after the fir[illegible] days.—W. J. DRYDEN.

Which Lay Larger Eggs?

JOS. I. BOLEY, McKittrick, [illegible] which hens lay the larger [illegible] Leghorns or Plymouth Rocks?

In California the White Leg[illegible] are now laying larger eggs [illegible] Barred Rocks. The size of [illegible] depends upon the breeding, f[illegible] strain. Hens not fed enough [illegible] small eggs as will those hatched [illegible] eggs which are small and laid by [illegible] which lays small eggs.

As Leghorns have been bred [illegible] production more progress [illegible] made in increasing egg size [illegible] been the case with the Rocks.

Tests made several years [illegible] ever indicated that Rocks laid [illegible] [illegible]

W. J. DRYDEN.

Beware of Pitfalls Besetting the Beginner

Lack of Experience or Information and Inadequate Capital, Shoals on Which Many Farm Barks Are Wrecked

ONE of the principal contributing causes of failures in various agricultural lines, according to the opinion of J. G. France, San Diego County Farm Adviser, is failure on the part of many novices to realize that farming is strictly a business proposition.

J. G. FRANCE
Photo courtesy Southern Trust and Commerce Bank.

"The average investment of farmers in this county is $20,000," he points out. "Yet how many persons imagine they can start on a shoe string and make a living as well as a substantial profit in farming. For each one who succeeds in doing this a hundred fail.

"We have passed through two definite eras in agriculture," France points out. "The first was the pioneer era, when practically everything was experimental; the second, the era of expansion and great real estate activity, with corresponding increase in land values.

"Now we are in the midst of the business period, when the farmer must rely for his profit largely upon the same principles governing other lines of business. No longer can he be sure of the great increment which has enabled many farmers of the previous generation to retire with modest fortunes, after having worked all their lives at a profit representing little more than a living wage."

Asked whether he would recommend any particular specialty as most likely to prove profitable in his locality under present conditions, France expressed the belief this must be a matter of individual preference.

"We can only recommend," he said, "that the prospective agriculturist study the field carefully, choose some specialty or combination to which he is best adapted, and make sure he does not over-step his cash capital.

"We find producers in all lines doing well; others in the same business, failing. In some cases it is hard to determine the reasons, but usually the failures can be traced to under-capitalization and poor business judgment."

Mr. France pointed out the fallacy of attempting to enter the poultry "game" under present conditions without full realization of the capital required. The beginner should be prepared to invest $3500 to $4000 exclusive of the home, and should not expect to make a living from less than 1000 birds.

Similarly, in the citrus business and other fruit growing, there is a tendency to underestimate the expense involved and the strain of carrying the orchards for several years until they come into bearing.

"Agriculture affords excellent opportunities now, as always," concluded the San Diego agent, "but some specialties are being over-boomed and many persons with insufficient experience continue to plunge without counting the cost."

Orange Orchard Averages $500 Per Acre

ONE of the oldest, best located and most profitable citrus orchards in Tulare County is the 18-acre Talbot grove in the Globe district. It is under the management of W. C. Talbot and owned jointly by him, his mother and sister.

A few trees on the place were planted in 1888 but most of the orchard was planted in the early 90s.

The place receives ditch water from the Tule River at a cost of approximately $20 per year for the 18 acres, all the water necessary being available from this source. The grove is in a location where there is a breeze every night, consequently frost injury is almost unknown. Not one navel orange the past season was injured enough to prevent it from being graded as Sunkist. It is doubtful if there is another grove of equal size in the county for which this can be said.

Talbot oranges are very early. It has been the practice to take advantage of this fact by shipping all the fruit which tested properly, in the first pools, while prices were high. As soon as the market weakens Talbot stops picking and waits until about February, when the fruit is fully ripe, full size and the market again in good shape, when he finishes picking and shipping.

For 25 years Talbot did his own marketing, but this season his fruit has been sold by the Tule River Citrus Association.

No hard-and-fast rule is followed by Talbot in orchard management. Generous fertilization is practiced, different kinds of plant food being used. Last year 200 pounds of sheep manure, per tree, was applied. Also some commercial fertilizer. All implements and vehicles are drawn by horses. There are various types of soil, which need to be cultivated at different times. A team of horses is considered far more convenient than a tractor for handling small plots. The soil is granitic, not the common adobe of the foothill sections. Deep, early winter plowing is practiced.

In the past nine years $80,000 worth of fruit has been taken from this fine orchard.—TULARE FARMER.

Santa Cruz Boy Makes a Dairy Record

THE story of Nelson Giberson, sophomore student of the Watsonville (Santa Cruz County) Union High School Agricultural Department, is one of inspiration to other youthful farmers. Nelson chose dairying as the kind of project work he was most qualified to carry out; also he felt it offered the [illegible] opportunity. He started with nothing plus ambition, and now owns livestock valued at over $400, plus a lot of valuable experience and more ambition.

The banker was a little doubtful [illegible] loaning him his original $100 but [illegible] the utmost confidence in him. [illegible] Nelson has made good on his [illegible] his word. Of the $320 he borrowed from the bank, only $70 remains to be paid. In a couple of months [illegible] be even with the world.

"The first cow I bought was purchased from Mr. Tate for $100, on [illegible] 1923, which money I borrowed from the Pajaro Valley National [illegible] young Giberson. "I re[illegible] bank within eight months. [illegible] a fine Holstein, produced [illegible] 271 gallons of milk the [illegible] her. The milk sold for [illegible] or $228. She [illegible] about $[illegible] worth of feed dur[illegible]

[illegible] January 7 [illegible] from a purebred [illegible] been producing [illegible] and [illegible] to [illegible]

[illegible] paid only $70 for her. She ate about $40 worth of feed. On October 6 I bought two more cows from R. H. Blohm for $150. These cows both had heifer calves and I intend to save them. These two cows have produced 765 gallons of milk in the last five months, or $137.70 worth. Their calves cost me around $16.

"The second cow I bought again has freshened and is producing five gallons of milk per day."

Approximately 3000 boys now are receiving instruction in the agricultural departments of high schools. How are these 3000 boys going to get into the farming "game" after they leave school? There are several ways open. One is to go back to "Dad's" farm and work for him and take what he can offer. Another is to work for some other farmer, save your money and, if successful, rent a farm and become an owner.

The most promising one, in the writer's estimation, is that one in which the father and the boy co-operate and in which the boy is encouraged in acquiring an equity in some form of agricultural property. When he graduates from the high school this will keep him in "grub" and "duds" and give him a start.—A. G. RINN, Agriculture Instructor, Watsonville Union High School.

WIND, RAIN HURT RABBITS

Rabbits will stand considerable cold, but are injured by wind and rain, points out [illegible] in reply to a letter of [illegible] from A. W. [illegible] (Marin County). [illegible] the [illegible]

Topping Grape Vines Pays

WE have been taking off the tips of Emperor grape vine shoots. This work takes very little time, will do no harm and probably will do some good. With this variety it certainly causes a bigger second crop, which last year sold for more per ton than the main crop.

Tipping, although it may not make more or better grapes this season, results in stronger canes and vines after the winter pruning is done. Topping which takes off much green growth probably is harmful, but that which removes only the soft tips that have not made much starch evidently does not shock the vine.—TULARE FARMER.

POISONING SOW BUGS

Instead of dusting strawberries infested with sow bugs with arsenical powder, try using little pieces of carrots or potatoes rolled in paris green, placing them where the insects occur, suggests Prof. G. P. Weldon, in answer to an inquiry from Mrs. C. E. Bruce, San Luis Obispo. This method is highly recommended by eminent entomologists.

BIRDS BOTHERING BERRIES

In reply to an inquiry from Mrs. Kate Berry, Monrovia, asking how to protect berries from birds, Prof. George P. Weldon recommends strewing straw about strawberries. This not only will serve as a measure of protection against feathered pests but also will conserve the water supply. Later in the season berry growers do not find birds so bothersome.

ARGENTINA LEADING CORN EXPORTER

Exports of corn from Argentina have averaged 132,000,000 bushels annually in the three-year period 1920-22, as compared with 116,000,000 bushels from the United States, according to statistics compiled by the United States Department of Agriculture.

WILSON TO BOOST GOLDEN STATE

R. N. Wilson, former executive secretary of the California Agricultural Legislative Committee, has accepted the position of manager of the agricultural department of the State Chamber of Commerce, with headquarters at San Francisco.

I Have Found Out How to Get Rid of Superfluous Hair —at Once

I had become utterly discouraged with a heavy growth of hair on my face and lip. I had tried every sort of depilatory and electrolysis and even a razor. But I couldn't get rid of it.

Then I made a wonderful discovery. I found a simple method by which I removed the hair at once and most wonderful to relate, it keeps the hair removed. My face is now as smooth as a baby's, not only free from superfluous hair but from pimples and blemishes.

I have explained this discovery to thousands of women who have had the same experience with it that I had and I will explain it to you if you also have superfluous hair. It isn't like anything you have ever used. It is not a powder, paste, wax or liquid, not a razor, not electricity. It causes no itching or burning and leaves no scars. As easy to use as your comb or brush.

Send for Free Book

A book that tells just how this wonderful method gets rid of superfluous hair is free upon request. Don't send a penny—just a letter or post card. Address Annette Lanzette, Dept. 1049, Care Hygienic Laboratories, 204 S. Peoria St., Chicago, Ill.

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POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, Calif.

CUTOVER and partly improved lands, near Deer Park, 23 mi. north of Spokane; rich, level land, well watered; free lumber; credit for clearing; 10 to 15 years pay, 6 per cent. DEER PARK LUMBER COMPANY, 214 Hutton Bldg., Spokane, Wash.

FARMS WANTED

CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

TOBACCO FOR SALE

HOMESPUN TOBACCO: Chewing, 5 lbs $1.75; 10, $3; smoking 5 lbs. $1.25; 10, $2; pipe and recipe free; pay when received. CO-OPERATIVE FARMERS, Paducah, Ky.

PATENT ATTORNEYS

HAZARD & MILLER—Herman Miller, formerly eight years member examining corps, U. S. Patent Office. Hazard's Book on Patents free. CENTRAL BLDG., Sixth and Main, Los Angeles, Calif.

Green Oranges Glut Markets

Premature Picking and Packing of Tulare Navels Held Cause of Much Trouble in the Industry

IN studying the problem of marketing Tulare County citrus fruits one difficulty is seen to overshadow everything else. It is not a question of what agency packs or sells the fruit, but of the rush to put as many navels as possible on the market at the earliest moment.

A few years ago this trouble did not exist. It developed with increased production, which has done two things: First, it has supplied the market with all the fruit it can absorb without demoralizing prices, second, it has given the packing houses a good deal more work than they can perform during the early season.

A condition like this, therefore, exists: Growers, whether they belong to a true co-operative association or ship through the Exchange by a commercial packer—or whether they ship through an independent dealer—are very likely to find they are short of boxes just at the time they are most anxious to pick and ship their fruit.

The most simple and direct method of overcoming this difficulty, apparently, is to have more field boxes and to enlarge packing house capacity. If this were accomplished to the satisfaction of every one the result would be disastrous, since markets already are jammed to capacity just before the Christmas holidays, and if all the fruit which northern orange growers wish to ship at that time were dumped on the market, a complete price collapse would result. As to the additional investment in picking boxes and packing houses, with equipment, that would be a severe financial burden.

GROWERS WANT MORE BOXES

And yet, in considering the attitude of producers toward their marketing agencies it is found that the most frequent cause of complaint is that difficulty of getting boxes when needed; that is, early in the season.

Exchange co-operative associations refuse to increase their membership because of limited packing house capacity, fearing it might result in delaying shipment of present members' fruit. Growers' stock companies that do some commercial packing find when they take in too much fruit they often lose more in delaying the shipment of their own fruit than they earn by the extra packing. However, the true solution of the problem is not an increase in handling facilities in order to ship all fruit early, but more even distribution in time of shipping.

If this could be managed satisfactorily it would make cheaper packing and eliminate much trouble. The Lindsay Fruit Association, for example—one of the oldest and largest co-operative houses in this district—has to carry 70,000 picking boxes in order to turn out 300 cars of navels. Even then there is a "jam," although each box is used only two and one-half times during the season.

In a typical citrus district south of Tehachapi there is no such rush to market fruit all at one time and 20,000 boxes are sufficient to handle the quantity of fruit mentioned. The capital required for handling northern navels, therefore, is very high. The cost would be even higher if facilities were provided for shipping all the fruit that growers want to ship at the earliest possible moment.

One Tulare packing house follows a different shipping policy. It is the Tule River Citrus Association, at Success, in the hills east of Porterville. Frank Wilson is the manager. That is a warm early section and every reasonable advantage is taken to ship fruit early. However, the moment the market is saturated and prices start to go to pieces, the association quits picking and shipping until prices pick up again. The Association packs and ships at such times as members desire, but most of them follow the manager's advice in this matter and wait until their fruit is in tip-top eating condition and the market has recovered. Then, as this fully ripe, delicious fruit goes on the market it commands an excellent price.

This packing house generally stops heavy shipping about December 10 and starts again in January. This year, owing to dull markets, late shipments went much later than in other years, a large part going forward in April and some in early May, when northern Valencias were beginning to move. These March-to-May oranges brought growers a dollar per box, orchard run. Small sizes, from 216 down, averaged the packing house 55 cents, net, per 50 pound box.

There is a high community spirit in this Success district, which is one reason why their excellent shipping policy can be followed. Before a directors' meeting each member of the association is notified of the subjects to be discussed and is requested to attend. After a general discussion the directors adopt the policy the members request.

This matter of a longer distributing season for northern oranges is a delicate subject to discuss. The whole year around the market has about all the oranges it profitably will absorb. If we delay some shipments will it not result in a greater glutting of the market later on? This is what most growers believe.

"Not so," affirms Wilson, "provided nothing but good fruit is shipped at all times." The rush of immature fruit to the market every fall kills later markets. Holding back much of that fruit and seeing that only good fruit goes out in the beginning will make people buy oranges later on, customers who now are sold many oranges that are unfit to eat. One poor orange at the holiday season will kill the market for ten good oranges during the rest of the winter.

Oranges that comply with the 8-to-1 test are good. What is needed is honest picking in order that nothing but good, ripe fruit will be packed. Outside oranges on the east side of the tree ripen first. Picking these first, then other outside fruit, and lastly the inside fruit when it comes up to test insures an entire pack of good oranges. But if the pickers put in a lot of 7 to 1 fruit, relying on higher testing fruit to bring the average up to 8-to-1, then the consumer gets oranges which kill the sale of a great deal of fruit later on.

According to Wilson, whose views are particularly valuable because he is the manager of the only packing house that ships late, a holding back of poor fruit would so strengthen markets that all oranges could be sold later at profitable prices. The trouble is not overproduction, but too much poor fruit in the beginning of the season, he believes.

This policy, if generally adopted, would lessen the rush for picking boxes early in the season and enable a small packing house to handle as much fruit as now requires a large establishment.

Even for Valencias Wilson believes in later shipments. "There is a good deal of the sheep in a human being," he points out. "When one man starts shipping Valencias, all his neighbors are unhappy until they follow his example. We find that about four times out of five later shipments pay the best."

WHY DELAY SHIPMENTS?

With navels, delayed shipments have two advantages. They reach a better market and they gain in size from 10 to 20 per cent. The grower runs the risk of frost, but if he wins he makes these two gains, which are sufficient to enable him to lose his crop once in three or four years and still come out ahead of those who follow the present plan.

Frost dodging is just as important in shipping as is the effort to obtain high opening prices. Either frost protection, frost insurance or a very warm location are required to insure profits. A continuation of seasons of crowded markets, with occasional losses by frost, probably will drive orange groves out of lowlands onto the slopes and eliminate sickly or poorly managed orchards.

The greatest need of the citrus industry at the present time is the elimination of unprofitable groves. They are an expensive luxury to the owners and tax on good groves, because of the injurious competition they create.
—TULARE FARMER.

PIGEONS

PIGEONS—Selected Silver King youngsters for sale. JAS. A. AVERY, Napa, Calif. R. R. 1, 704.

MISCELLANEOUS

LAWNSHOWER SQUARE SPRAY SPRINKLERS distribute water uniformly over a large SQUARE AREA, reaching CORNERS of lawn or garden without flooding sidewalks and wasting water. Cast brass. Price $1.25 post paid. Money refunded if not satisfactory. LAWNSHOWER MFG. CO., 727 Tennessee St., Vallejo, Calif.

FRUIT JAR LABELS make your jars look neat and attractive, also make it easy to find just the jar you want. 400 assorted labels for only 50c postpaid. Check or money order. LESTER G. GARBE, 363 Frederick St., San Francisco, Calif.

FARMER WANTED to operate banana plant nursery in California. Demand increasing. Large profits. BOLLES BANANA NURSERIES, Oldsmar, Florida.

Burbank on Cherries

(Continued From Page Three)

do in most of the fruit trees, to cut away all but a single blossom, or two in each cluster which it is desired to cross-pollinate, so as to give an opportunity to work to advantage. The blossom to be pollenized is also more apt to produce fruit where it is the only one remaining, than if would be if several were preserved in the cluster.

If we desire to pollenize a certain tree with several kinds of fruit, a single branch is selected and tagged with a string, or piece of cloth of a definite color, indicating that all having that mark were treated with pollen of a particular variety.

In apples and pears some of the flowers in a cluster bloom earlier than others, but with cherries the flowers often are all in bloom about the same time, so that there is a much shorter time in which to pollenize them than with apples or pears.

Many experimenters, after they have cross-pollinated a flower, put some sort of covering over it, such as a paper sack. For practical purposes it is useless to go to this extra trouble, for if the showy parts of the blossom have been removed insects will not visit it and the chances are so small that any other pollen will come in contact with the stigma, especially if it has been thoroughly covered with pollen.

In cross pollinating, it is very essential to have the flowers in exactly the right condition. The blossom to be operated upon should be taken on the morning of the day in which it will open. If taken too young the result is not likely to be successful; and of course, if taken after the blossom opens, the risk that the stigma has been already pollinated by some insect or by the wind, is considerable. However, with a good hand lens of low magnifying power any pollen grains that have recently fallen on the stigma can be readily detected and easily brushed or blown off and the pollen desired afterward applied without danger of previous pollination.

Friendly Philosophy

(Continued From Page Four)

ren, actually have injured the latter and themselves as well.

LET REASON AND LOGIC RULE—Let us take a sensible, logical view of the situation. Agriculture is a basic, stable, dependable business, susceptible to the same influences as other lines. Farmers are entitled to organize, increase efficiency, widen their markets and demand a square deal.

But the mere fact that we are raising fruit or vegetables or livestock instead of manufacturing cloth or selling clothing, or building bridges, does not give us the right to demand more than a square deal, nor can we serve our own best interests by doing so.

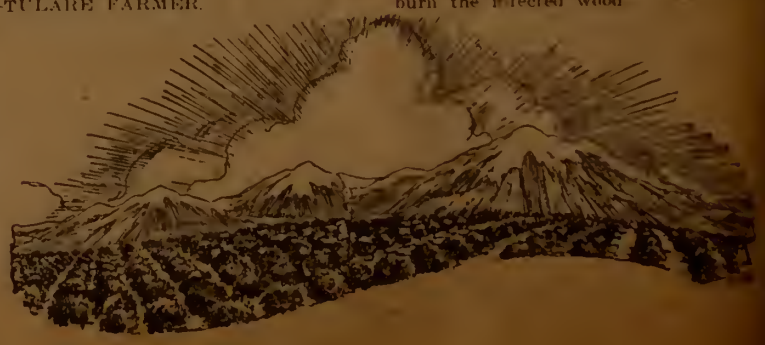
We fear some of our readers will read this dissertation indicates disloyalty to farmers and lack of understanding of farm problems. However, time will prove, we believe, that nothing will ever be gained by farmers who regard themselves as "the chosen few," entitled to special privileges and deserving of paternalistic petting.

The business farmer who considers farm his permanent home and who has the highest respect for his vocation (looking at the situation strictly from a selfish viewpoint) cannot afford to ask or expect more than an even break.

But fair dealing he must and will have, and who is there to deny THIS right? Let us all stick together to see that nothing is put over on us but make as little fuss over it as possible.

BIRDS WILL KILL WORMS

Cultivation of berry bushes will expose worms which are working in the crown or roots of the plants, thus giving birds a chance to destroy many pests, Prof. G. P. Weldon suggests in answer to an inquiry from a Los Angeles County reader. If berries attack the canes the best thing to do is to burn the infected wood.



Beware These Summer Pests

How and When to Apply Control Measures—Timely, Practical Suggestions

By GEO. P. WELDON
*Contributing Editor
Pomologist, Chaffey Junior College of Agriculture*

THE first few hot days of June are very apt to favor the development of certain species of red spiders. It is well, therefore, for the fruit grower to be on the alert and watch the first appearance of this pest. Red spider injury is characterized by a faded or slightly mottled condition of the infested leaves. This injury is due to the feeding of the mites which attack the surface of the leaf either above or underneath. All of the red spiders are so small that they may easily escape detection; yet a good hand lens will show them up nicely, and every fruit grower should possess some kind of a glass that will make possible the observation of such tiny depredators as the red spiders.

PROFESSOR WELDON

At first injury from these pests is only slight, but as the season advances, if nothing is done to check their spread, a bad infestation may result. On the other hand there are a number of natural enemies of the red spiders and sometimes these are sufficient to keep their numbers reduced to a point where little harm will result from their attack upon trees.

It is only by very close studies of these mites that one is enabled to make an accurate decision regarding spraying. If the injury is only slight and does not become worse as the season advances, there is little need for spraying. If, on the other hand, each day sees more and more damage, spraying must be done or trees will suffer severely.

POISON SPIDERS WITH SULPHUR

Fortunately red spiders are not difficult to combat. All species are subject to sulphur poisoning and their control is a matter of applying sulphur in some form to the infested trees.

Very good results at times have been attained by the use of flowers of sulphur, dusted into the foliage. This method is not always satisfactory, however, as weather conditions and perhaps other factors have a decided influence.

One of the best forms of sulphur to use is that which bears the trade name "Atomic." No doubt there are other forms that will do the work equally as well but this one is handled by insecticide dealers everywhere and is usually easy to procure.

Since the sulphur sprays kill by contact, it is necessary to apply the spray thoroughly, to every portion of the tree in order that it may cover each mite and the percentage killed will be in direct proportion to the thoroughness of the application.

Another type of orchard pest is found in aphis of all species. Nearly every kind of a plant serves as a host to some species of aphis. Our deciduous fruit trees have their share, and literally dozens of species are found to infest fruits of different kinds.

Fortunately there are only a few species that occur commonly enough and in great enough abundance to demand attention. Among the more common and it might be said ever-present species (although they may be controlled) are: Woolly apple aphis, green apple aphis, rosy apple aphis, [illegible] peach aphis, mealy plum aphis, black cherry aphis, rose aphis and [illegible] aphis.

ANTS INDICATE PLANT LICE

The presence of aphis on trees [illegible] is indicated by ants, although they may also indicate the presence of certain scale insects and mealy [illegible]. The occurrence of ants on aphis-infested trees or plants is due to the [illegible] of these insects for the "honey-[illegible]" or liquid droppings of most [illegible] of aphis.

[illegible] are a few, like the woolly [illegible] that ants do not [illegible] but in most cases [illegible] of ants and [illegible] even rise to the [illegible] is [illegible] for the aphid.

[illegible] aphis [illegible] with [illegible] form [illegible] 40 per [illegible] The [illegible] to 1924 [illegible]

[illegible] on [illegible] will

One of the more common leaf-feeding insects is found on cherry and pear trees. It may be observed as a dark green, slimy larva, one-half inch long on the upper surface of the leaf from which it devours the epidermal cells. The adult is a little, four winged insect which is closely related to the bee, but which more nearly resembles the house fly, that lays its eggs just beneath the epidermis on the upper surface of a leaf.

Unsprayed young trees are often severely injured by this insect. Older trees, particularly pears, which are sprayed with arsenate of lead for the codling moth, seldom are affected. Cherries, which are not usually treated with an arsenical, may carry a bad infestation at any age but younger trees are more generally infested.

Control of the cherry slug is accomplished best by spraying with lead arsenate, using either 1½ pounds of powder or three pounds of paste to 50 gallons of water.

CHERRY SLUGS EASILY KILLED

All contact sprays, such as nicotine sulphate, whale oil soap and oil emulsion, are effective also. Even dust, thrown upon the leaves, will adhere to the slimy bodies of the insects and cause death by suffocation.

There are various other forms of leaf-feeding insects which may be found on the foliage of orchard trees from time to time. As a general rule arsenate of lead as recommended for the cherry slug will control effectively.

This article would not be complete without a discussion of codling moth of the apple, pear and quince. Everyone is familiar with the apple worm and a description here is unnecessary. The person who is growing either apples or pears is vitally interested in its control.

The most important thing that can be done to rid an orchard of this pest is to spray as the blossoms are dropping in the spring. Unfortunately this single application will not result in complete control if the pest is abundant and from three to five applications in a season become necessary.

The timing of the summer sprays is a little difficult and about the simplest directions that I can give are as follows: First spray—apply when 90 per cent of the blossoms have fallen and repeat application in ten days if blooming is uneven.

REPEAT CODLING MOTH SPRAYS

Second spray—apply three weeks after the first. Third spray—apply two weeks after the second.

All these applications are directed against the first brood and in extreme cases later sprays may be necessary for the second brood.

Many other insects might be included in a list of pests that the fruit grower should become familiar with. In case of discovery of an insect that is not known it is well to send specimens to some entomologist for identification.

[Editor's Note—University of California Circular No. 265, "Plant Disease and Pest Control," which may be obtained by writing the director of the Agricultural Experiment Station, Berkeley contains much helpful information.]

New Forestry Bulletin

A BULLETIN recently issued by the Division of Forestry of the University of California describing the courses offered by the University for the training of foresters and lumbermen, according to Professor E. Fritz who edited it, should do much to dispel the too general notion that there is nothing to forestry but planting trees and fighting fires. Indeed, a reading of the brief description of each course offered by this division will present forestry as a very broad and important field, and as diverse as the life of a growing forest is complex. The bulletin also gives interesting and instructive information concerning California's forests, their extent, their value, and their importance to the people and the industries of the State.

The booklet is beautifully illustrated. Copies may be had free by writing the Division of Forestry, 205 Hilgard Hall, Berkeley, Calif.

FARM PRODUCTS INCREASE BILLION

The [illegible] value of crops and livestock products [illegible] animals [illegible] produced in the United States last year is estimated at $12,[illegible] by the United States Department of Agriculture. This was $960,000,000 more than the estimate for 19[illegible].

Know Your CALIFORNIA

Little Journeys Into Agricultural Districts

[Editor's Note—Brief, intimate glimpses of agricultural communities in various parts of the State will be published from time to time under this heading. Subjects will be chosen at random without regard to rank in production or agricultural importance. Get acquainted with your California, its opportunities and delights, by accompanying ORCHARD and FARM representatives upon these informative "little journeys."]

HIGHGROVE, RIVERSIDE COUNTY

HIGHGROVE, Riverside County, California, is located just north of the city boundary of Riverside, east of Lacadena Drive, and south of the San Bernardino County line.

Its environment is delightful and beautiful. The elevation is about 100 feet higher than Riverside, and the little town is "mountain girt and the enshrouded"—a quiet, lovely homesite.

Highgrove is splendidly equipped with railroad facilities. Through it pass the main lines of the Santa Fe system. This is also the junction point of the branch line of this system, known as the "Turkey Trail," which leads out into the rich agricultural and fruit districts of Perris, Nuevo, San Jacinto, Hemet and Elsinore. The Riverside branch of the Union Pacific also passes through Highgrove.

Highgrove is unincorporated. It has a population of about 400, and a contiguous population of some 500 more. It has a good church and parsonage of the Methodist denomination, which serves in reality as a community church. It has splendid schools for the first eight grades and its graduates have all the benefits of the splendid high school and Junior College of Riverside. It has a Community Hall and a wide awake Chamber of Commerce. Its streets and homes are well lighted by electricity and gas is piped on the main thoroughfares.

Citrus culture is the principal wealth-producing source. Walnuts and peaches are also raised and thrive here. Here are located the famous L. V. W. Brown citrus orchards, whose products for so many years have captured the sweepstake prizes for navel oranges and grape fruit at the National Orange show, held annually at San Bernardino. Many other orchards of almost equal merit are located here.

Five citrus packing houses handle the fruit output of this district. These give employment to a large number of people and their annual output is some 1500 cars. The packing houses employ both male and female help. The moral tone of these places is high and the best people of the community consider it a privilege to work in them and greatly appreciate the financial returns thus obtained.

Highgrove's water supply for irrigation and domestic purposes is obtained from the Gage canal. The high quality and purity of this water is well known. Its sources are in the San Bernardino mountains and from artesian wells. The water flows swiftly through a cemented canal, and is pure, sparkling and healthful.

Highgrove offers a splendid opportunity and a delightful location to those who prefer to live in a suburban district and still carry on their business pursuits and social relationships in the larger center. It is just four miles from the business center of Riverside, to which it is connected by bus line and Pacific Electric railroad. The distance offers a short, delightful auto trip of about 15 minutes. Property values here are cheap at the present time. There are no city taxes. It is in all particulars deserving the careful consideration of those seeking an ideal home location.—W. W. AYERS.

Poor Grove—Good Oranges

SOME of the finest Valencias to be found in Tulare County this year, or any year come from the grove of W. A. Talbott at Plano in spite of the fact that the grove is a poor producer and in poor shape. As a rule it is the heaviest producing groves that turn off the highest quality fruit. This grove of 12 acres is on very heavy soil. It has been given a good deal of water and cultivation, but little or no fertilizer. The trees are old and unthrifty. Crops are always small and the fruit quality always exceptionally high.—TULARE FARMER.

SMALL PERCENTAGE PUREBREDS

Although there are 24,675,000 milk cows on the farms of this country less than 1,000,000 of these are purebred dairy animals, says the California Dairy Council.

Transferring Colonies

IN answer to questions submitted by Percy Gibbs, Coos County, Oregon, will say:

Bee colonies may be transferred at any time except during very cold weather. Unless the weather is warm and honey coming in the worker brood should be transferred also, as it is difficult for bees to draw out foundation and start a new brood nest in cold weather.

In transferring bees from old hives or nests great care must be taken to secure the queen, as all the bees will follow her. If she should be accidentally killed or lost the bees may raise another, providing there are eggs or very young larvae in the old brood combs to start with. Save all old combs with worker brood in, as the colony will be that much stronger.

Any manufacturer of beekeepers' supplies can furnish books on beekeeping; also bees and queens. J. D. BIXBY, SR.

DECREASE IN WHEAT ACREAGE

A slight decrease in winter wheat acreage in some of the leading winter wheat producing countries of Europe is reported to the United States Department of Agriculture.

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ORCHARD and FARM is famed for its "human interest" articles. The Editors take our readers each week upon "personally conducted tours" to the homes and ranches of successful men and women who are making California agricultural history. But every issue contains as well technical information worth hundreds of dollars to practical producers. Such writers as these are adding constantly to ORCHARD and FARM'S prestige:

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Burbank has been called "the best known man in the world." And we might add that the famous plant-breeder is also one of the best loved. Luther Burbank writes for no other agricultural publication.

J. D. Bixby Sr.

For six years editor of "Western Honey Bee." Lecturer on bee and honey topics. For eighteen years a successful apiarist. One of the best-known bee men in California. Bixby's "Bee Notes" in ORCHARD and FARM are always to the point, but "without stingers." And he writes for the novice as well as the commercial producer.

J. Eliot Coit

Dr. Coit is the author of "Citrus Fruits," the standard textbook, and was formerly professor of citriculture, University of California. In addition to holding other important public offices, he is now President of the California Avocado Association.

Ralph D. Cornell

Master in Landscape Architecture. Designer of some of the most attractive country and suburban estates in California. Contributes practical, helpful articles on landscape design, ornamentals and kindred topics.

Cornell has that unusual combination of artistic temperament and practical knowledge which enables him to meet everyday problems.

W. H. Gardner

After receiving his degree in engineering from Stanford University, Gardner soon became identified with the tractor and implement industry, having been one of the organizers and first officials of the California Tractor Association. He is also a widely known advertising man with broad experience along lines pertaining to agriculture.

His articles keep our readers informed upon new developments in power farming and allied subjects.

W. S. Guilford

Director American Shropshire Registry Association. Author, "California Hog Book" and "Irrigation Practice." Operator of a large diversified ranch in the upper Sacramento Valley. "Home Farm Happenings," recorded by Guilford, constitute one of ORCHARD and FARM'S most unique and valuable features.

Robert E. Jones

Manager, California Dairy Show. Executive Officer, California Dairy Council. Nationally known writer. Formerly Agriculture Editor, Sacramento Bee. Bob Jones' "Little Stories of Farming" is one of ORCHARD and FARM'S most interesting departments. "Bob" is one of California's most popular agricultural leaders.

Robert W. Hodgson

Although not an exclusive contributor (by reason of his official position as a member of the Agricultural Extension Service), Hodgson writes regularly for ORCHARD and FARM.

He is the author of "Citrus Pruning" and other important bulletins and head of America's largest County Farm Bureau Organization—that of Los Angeles County. Hodgson is regarded as one of California's best posted horticultural authorities.

Ralph G. Risser

As manager of the Crop Production Department of the California Vegetable Union Risser has had more to do, perhaps, than any other one man with the development of the commercial vegetable industry of this State to its present gigantic proportions.

He is the author of many bulletins on special crops, including "Tomatoes for Fall Shipment," "Growing Cantaloupes Under Irrigation," "Lettuce Growing" and "The Cauliflower Crop."

Helen Temple

Mrs. W. E. Temple has made a life study of floriculture. Her articles on flowers and ornamental gardening have aided thousands of rural and suburban women to beautify their homes and grounds.

She not only knows flowers, but also has the rare faculty of imparting her knowledge readily to others.

W. J. Dryden

Mr. Dryden, poultry editor, received his training at the Oregon Agricultural College and has traveled extensively through the poultry districts of the Pacific West observing the methods of successful producers and advising them on their practical problems. He is at present engaged in the poultry breeding business in Contra Costa County. In addition to contributing regularly "Practical Poultry Pointers" and articles about interesting ranches visited he answers questions of subscribers on breeding, feeding, housing, selling—in fact, all phases of poultry husbandry.

George P. Weldon

Pomologist, Chaffey Junior College. Former executive, State Horticultural Commission. Judge of Fruit Exhibits, California State Fair. Author of "Apple Growing in California," "Pear Growing in California," and other publications.

Professor Weldon is recognized as one of the leading authorities on commercial fruit growing problems in California today.

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FOR A LIBERAL AGRICULTURAL EDUCATION, READ

ORCHARD and FARM

Beating the Sun at His Own Game Drying Prunes

Sonoma Orchardist Cures Imperial Fruit Efficiently and Economically With New Type Dehydrator

By O. H. BARNHILL

LAST year at the Farmer prune orchard near Santa Rosa a new type dehydrator was used, with great satisfaction to the owners and to the designer.

"No one who has used a good dehydrator ever would think of going back to the old way of sun drying," declares Ralph Farmer. "The cost of installing a plant for artificial fruit drying is more than offset by the numerous advantages of this method—economy of operation, saving of time and superiority of product.

"It takes a week or 10 days to dry prunes in the sun. Bad weather causes much extra work, besides injuring the fruit. With our single unit dehydrator, costing $2000, we dried four tons of prunes in 14 hours. Little labor is required to operate the plant, the main work consisting of starting a fire, turning on the fan switch, putting the fruit in the dryer and taking it out again.

"The temperature is regulated automatically by a wet bulb thermometer, which records on an outside chart the degree of heat and humidity. Surplus heat and moisture are disposed of through six-inch pipes, which are opened and closed by means of a thermostat."

Farmer's dehydrated prunes have flesh of a bright amber color and a very agreeable taste and consistency, much superior to sun dried prunes, which often are sticky or mushy. None of the fruit "caramelized," a trouble which often is difficult to prevent. Instead of the usual 3-cent advance, 5 cents was paid by the Association when Farmer's dehydrated prunes were delivered.

Instead of 225 pounds of fresh fruit being required to make 100 pounds of the dried product, which is considered a fair average, only 185 pounds were required when the prunes were dehydrated, thus effecting a substantial saving.

The dehydrator, which was designed and built by George R. Anderson, is of hollow tile construction, 14 by 16 feet. Upon an inside platform eight feet high there are two radiators, each unit being four feet high, three feet wide and about eight feet long. Steam is supplied by an outside 1½ h. h. coal-burning boiler.

Two four-foot steel fans—shaped something like small windmills—force the hot air through the radiator and against the opposite wall, where it is deflected downward by galvanized iron sheeting, which curves from walls to ceiling, the latter being just above the radiators. This sends the hot air through the prunes, which are stacked in shallow trays underneath the radiator platform. The heated air rises against the opposite wall and is sucked through the fans and driven against the radiators and again downward through the fruit, a continuous circular motion thus being maintained.

"The big problem of dehydration," Anderson points out, "is to get rid of moisture, which passes from the fruit into the air. Here is where machines which depend upon the natural circulation of air lose out. We take care of this problem by means of two six-inch pipes, which extend under the floor of the building and project up through the floor 12 inches. Whenever the air becomes sufficiently saturated with moisture these pipes open automatically and close the same way, when enough dry air has been admitted to replace the damp air which has escaped."

The prune-laden trays are stacked upon supports made by nailing three 1¼-inch boards a foot wide across two 2x10's set on edge, which makes it possible to move a large stack with a hand truck, reducing to a minimum the work of handling the fruit.

Farmer is planning to add two more units to his dehydrator. The addition will be 16 x 28 feet and will cost, it is estimated, $3000.

PRUNES DISPLACE HOPS

The Farmer orchard comprises 50 acres of first-class nine-year-old trees, which last year bore 22 tons of fruit that sold for 7 cents a pound. The tonnage is expected largely to increase in the next few years; hence the additions to the dehydrator.

Years ago the Farmer Ranch was devoted mostly to hop growing. A large prune orchard was planted and grubbed up after it had been brought into full bearing, because prune prices dropped to bedrock—and lower. Nine years ago, when the present orchard was planted, it was decided to get back into the prune game. Mrs. Dorothy Farmer, Ralph's mother, is part owner of the orchard and takes an active interest in ranch work.

Anderson owns and manages a large fruit farm in Rincon Valley, producing annually 155 tons of Gravenstein apples and 4000 boxes of winter varieties, also 100 tons of Royal Ann cherries. He is much interested in irrigation and fertilization and recently has put down a well 315 feet deep, which has been walled with double 12-inch casing. The well cost $2000 and the pumping plant as much more. This well is expected to supply sufficient water to grow leguminous cover crops.

In addition to his farming and fertilizer business and dehydrator project, Anderson sells real estate and has perfected a process for canning dried prunes which he confidently expects to prove a world beater. Those who have sampled this fine food product are inclined to share the inventor's expectations.

Although the enterprises mentioned are sufficient to illustrate Anderson's versatility, he has several others up his sleeve. One is a device for oiling tractors, which has received enthusiastic praise from those who have used it. Another Anderson enterprise is doing custom work with a large track-laying tractor, which was purchased at such a low price that more than once it has paid for itself.

When 16 years of age Anderson left a wealthy country home in Old Virginia, coming to the Pacific Coast in search of adventure, which he has found in sufficient measure to resist all temptations to return to the Dominion State. He gets a great "kick" out of California country life and is one of the most popular men in his section.

A. W. Christie, University of California dehydrator expert, examined Farmer's new plant and says it does excellent work, turning out a superior product much quicker and cheaper than sun drying. "But," he adds, "there are several other types of dehydrators which are giving good results in California. True, some are not, but most of the unsatisfactory results can be traced to inefficient operation.

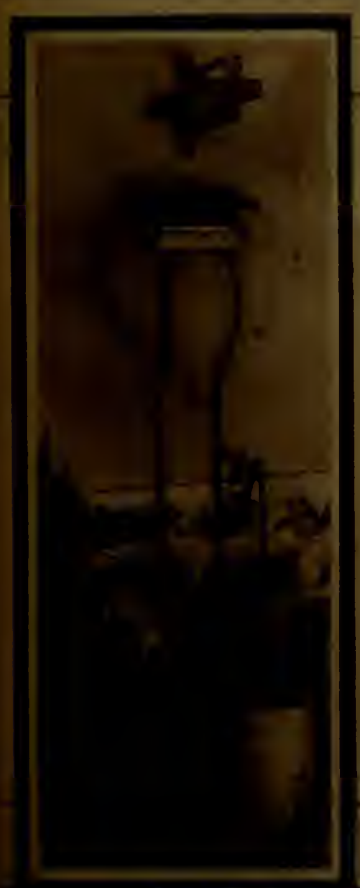
"Anderson's dehydrator resembles another popular type used in this State, the principal difference between the two consisting in the method of heating and circulating the air, he explains. One type uses air heated directly by an oil-burning furnace, which is more economical than using steam radiators.

"At one end of the dry room there is a fan which draws the air circulated by a blower at the other end, adding a lateral movement to the whirling motion. Thus the air driven through the prunes crosswise also is pulled lengthwise, giving it a screw-like movement. From the far end of the room it is returned through a pipe to the end where the hot air enters, which keeps it circulating through the fruit continuously. A vent pipe is opened and closed as needed to dispose of air which becomes too heavily laden with moisture.

"There is a great future" concludes Christie, "for dehydrating not only prunes, but also pears, peaches, apricots, figs, apples and even raisins and walnuts."

This is the second model prune orchard that has displaced hops in the old Farmer homestead. The owners are more than pleased with their experiment in artificial dehydration and will enlarge their plant.

This is one of the most successful dehydrators in Sonoma County, according to O. E. Bremner, county horticultural commissioner. For ease of operation and quality of product it leaves little to be desired.



Part of the device which automatically regulates heat and humidity inside the dehydrator. Keeping the air dry is essential.

George R. Anderson manages ranches, sells real estate and fertilizer, invents dehydrators and does many other interesting things.

Frozen Valencias Recover

ON cutting across a Valencia that has been hurt somewhat by frost and has then recovered one can learn how it gets into good condition again. In a normal Valencia orange the sections are all even in shape and size. A frosted Valencia that has recovered will have some sections small and misshapen and others large and bulged out.

The reason for this is that frosted tissue does not come back. It dries and gradually disappears (provided there is not too much of it) and the unfrozen tissue swells up and grows until it fills up all the orange that it can.

Usually unfrosted sections seem to grow faster than uninjured parts of frosted sections. The result is quite apparent in cutting a Valencia that has been injured slightly, but has not been ruined. Such a fruit will seldom be as good as if no frost injury had occurred, although it may be full of juice before picking time.—TULARE FARMER.

The Modern Cheese Factory

After the curd is pressed together, a cheesecloth bandage is placed around the cylindrical mass to protect it during subsequent handling.

By using a Gange press a large number of hoops can be compacted at the same time, thus facilitating handling of the curd of which cheese is composed.

The cheddaring process leaves the curd in large strips, which are here being cut into small pieces before salting and pressing.

The cheese is dipped into hot paraffin in order to form on the outside a thin protective film, which prevents the rind from cracking.

Fresh cheese is tough and rubbery and lacks the attractive flavor of the finished article. The curing process is accomplished by holding the cheeses six weeks in a room at a temperature of about 55 degrees.

In order to obtain uniformity in size, the curd is weighed into each hoop. Thirty pounds of curd make 23 pounds of cured, concentrated cheese.

Dairy students making cheese at the University Farm, Davis. Cheese making, formerly an art, now is an applied science, taught in many colleges in the United States.

(ILLUSTRATIONS COURTESY UNIVERSITY FARM, DAVIS)

ORCHARD and FARM

JUNE 15, 1924

Old World Tree Training Methods in California

Espalier System and Dwarf Stocks Engage Attention of Horticultural Experimenters—Commercial Possibilities Discussed

By KNOWLES RYERSON

Agricultural Extension Service, University of California

WITH rapid settlement and development of small suburban farms, the question is frequently asked whether or not the European system of intensive tree training can be applied under California conditions and if so whether it would be practical. To reply intelligently, a brief review of the development and background of the European system is essential.

The intensive system of fruit tree culture whereby trees are trained on walls and espaliers, or in upright, geometric and formal designs is a product of long centuries of garden culture and is essentially a gardening rather than an orcharding practice. Moreover it has developed in a region of the world where there is far less sunshine, consequently far less heat and light than in the fruit growing sections of this country; hence it has been necessary to take every opportunity to secure maximum amounts of these two necessities, if fruit is to be secured at all.

Under such climatic conditions, the growth is much slower than in this country and therefore it is easier to direct and control. Resort is made to growing trees on dwarf roots, root pruning and top pruning in order to repress wood growth and encourage fruiting. Through this system of tree culture apples, pears, peaches, nectarines and apricots are grown extensively, particularly in France, under climatic conditions such as would bring no results with the methods used in orcharding in California.

When it comes to producing trees by such a system under most California conditions, the question is can they be kept from growing sufficiently to conform to a limited space and at the same time produce fruit with a minimum expenditure of labor? California is a famous fruit State because of the long season of bright, sunny days with abundance of heat during the growing and fruiting season. Extensive tree growth is made each year by practically all our fruit trees. As much growth occurs in a single season as may occur in three or four seasons in Europe.

In an experiment with this type of training in the San Fernanda Valley, (Los Angeles County), one-year-old peach trees set out in February, 1923, grew to the top of a six-foot wire fence the first season, and threw eight laterals on each side of the trunk, which were trained to wires eight inches apart. By the first fall these lateral branches were entwined with those from the next tree set eight feet away on the same fence. Other fruit varieties also made enormous growth.

It remains to be seen whether severe summer pruning and heavy winter thinning will be sufficient to hold the trees within bounds and maintain production. The amount of extra work required in pruning if such a practice were feasible would be considerable.

Granted that the system may be adapted to California conditions, the question of whether or not it would pay commercially is *(Continued on Page 9)*

Had not the camera verified his observation, the tourist who saw this pear tree, trained to a wall in France, might have doubted his own eyesight! Garden of the Horticultural Society of Le Mans.

Ordinarily it would take a very fast motor car (or at least liberal indulgence at the flowing bowl) to make an apple orchard look like this! But again the camera does not lie! "Somewhere in France."

The photographs at left and right were taken with the ORCHARD and FARM camera at the Chas. Weeks ranch in the San Fernando Valley (Los Angeles County). Mr. Weeks has trained a number of fruit trees on the strands of the wire fence surrounding his poultry farm.

Left—"Double U" training of apples, School of Viticulture, Beaume, France.

Close-up of wall, showing method of pruning and training young peach tree according to Espalier system. Photographed by the author in France.

French apple tree trained to a cone; brac limbs in-grafted. "Ca you beat it?"

ORCHARD and FARM

THE CALIFORNIA AGRICULTURAL WEEKLY

JUNE 15, 1924

Countrywoman's Club—For Our Women Readers

Cash Prizes for Letters—You Are Invited to Correspond With Mrs. Leitch Concerning This New ORCHARD and FARM Feature

By FLAVIA GAINES LEITCH

GREETINGS to the women who preside over our country homes.

Here is a new feature in your ORCHARD and FARM magazine—a brand new feature that will be of interest to every woman who is active in the rural life of the Pacific West.

We want the activities of the Countrywoman's Club to be directed by our readers. Through it you can send your thoughts to your neighbor hundreds of miles away. You can even tell the women in Oregon, Washington, Nevada, Arizona and New Mexico what you are doing on your farms in California and exchange ideas with them and each other. You can give word pictures of the unusual or interesting thing about your family, your farm or your community.

GREAT POTENTIAL INFLUENCE

In fact, our club may become much more than a "meeting place" for the exchange of ideas. It may be a great influence in forwarding—the ideals and activities in which all women are taking part.

We can make our influence felt from coast to coast. We can reach the ears of the Governors of the Western States and even the ear of the President in Washington. We can do much more than we are able to accomplish through the farm bureau or grange or other local organizations in which the women's part is secondary.

Every woman knows the strength of the clubs in the cities. They take the lead in every progressive movement for the welfare of city, State and Nation. They ACCOMPLISH things—little things and big things. No wrong condition is too small for them to right and no undertaking too large for them to attempt.

That is not all. So great is their strength in every city in the United States today that the men not only ask but depend upon their assistance in bringing about whatever is for the welfare of humanity. When the women approve their undertaking, it usually carries with the people.

The women's clubs in the city are interested in all that pertains to civic, philanthropic and industrial conditions, and they are united in their efforts to improve the sanitation, health and education of the people.

You can assist your husbands in bringing about the measures they wish to accomplish for the benefit of the farmer. You can insist upon and aid in the betterment of production and marketing conditions, and the passage of needed legislation.

You can improve the conditions for your children in country schools and church. You can open more doors of opportunity for them and prepare them to be strong men and women when they go to a city to live. You can improve their opportunities for healthful recreation.

You can better your own surroundings in a thousand ways. You can create an environment in your home so fine, strong and uplifting that it will be an inspiration to your family to the end of their days. You can find ways to have the most modern methods and equipment throughout your house and conduct your department on as scientific a basis as the remainder of the farm is run.

You can have all that the women of a city have and more. For you have the open spaces eternally around you, vast distances ever before your eyes, the fragrance of orchard, garden and flower, the balm of sunshine untainted by grimy smoke and an opulence of soil that ever supplies the best in food and nourishment.

SUGGESTIONS SOLICITED

As this paper goes to press "THE COUNTRYWOMAN'S CLUB" comes into existence.

Let me hear from you—you women who live in country homes.

What can you do to make this club a real factor? What will make it most interesting to you? What subjects shall we discuss in our open letters to each other?

This new feature of ORCHARD and FARM magazine shall be our club organ. Through it we shall keep in touch with each other. It shall carry the news of the country women's activities. It shall bring us in close touch with our neighbor, though she be hundreds of miles away.

Oh, we are to have a great organization, we women of THE COUNTRYWOMAN'S CLUB. Let us not stop until every woman in every home, be it large or small, in rural California and neighboring States, is banded together for the progress and welfare of country life. Please read the announcement of our prize contest and write a letter TODAY!

(Every woman reader may "attend" the first "meeting" of our club without leaving her home. Simply watch for Mrs. Leitch's next article to be published in an early issue.—Editor.)

You May Win One of These Prizes!

FIRST AWARD, $10; SECOND, $5; THIRD, $3; FOURTH, $2

WITH this issue of ORCHARD and FARM, the Countrywoman's Club comes into being. Just what its activities shall be, we want our readers to determine. The Editor of ORCHARD and FARM has a theory that the thousands of women who preside over California's beautiful farm homes would like to exchange ideas on the larger aspects of their busy, interesting lives. The household hints, beauty talks and similar topics we shall leave to other sections of The Examiner, which now handle these important subjects in so interesting and helpful a manner for both city and country readers.

FLAVIA GAINES LEITCH

But just what subjects, specifically, shall be discussed at the "meetings" of our club! Do you consider child welfare work and school hygiene most important, or have you a theory concerning the political influence of women's organizations? Would you like to read letters from other women telling how they plan their day's work in order to gain more time for rest, recreation and reading? What about the possibility of helping your husband in his business or managing an enterprise of your own? Indeed, scores of topics will suggest themselves!

Your letter must be postmarked not later than July 15.

No letter may exceed 300 words.

Tell, in as concise and interesting a way as you can, what you think the COUNTRYWOMAN'S CLUB should be and represent. Suggest topics for discussion; tell how you think it can be made most helpful to all women readers of ORCHARD and FARM (bearing in mind this magazine is not distributed with the city editions of The Examiner).

Be sure to sign name and address plainly.

Address Flavia Gaines Leitch, Executive Secretary, the COUNTRYWOMAN'S CLUB, Orchard and Farm, Examiner Bldg., Los Angeles. Prize letters and names of winners will be published as soon as possible after judges have made their decision.

Important Fruit Breeding Projects at Stanford University

New Varieties Pomaceous Fruits Being Originated—Ambitious Project Covers Ten-Year Period

By ANDREW R. BOONE

W. F. WIGHT and Stanford University are co-partners in an enterprise to improve existing varieties of fruits. This project is located on a 20-acre field in the university campus and has been in progress two years. If plans outlined by the Department of Agriculture are carried out the experiment will continue for eight years longer, or until early hybrids have come into full bearing.

Experiments to date have been confined chiefly to pears, peaches, plums and apricots. It is the purpose of the experimenter, who was a botany student at Stanford over 20 years ago and now has returned to his old haunts for this important work, to produce varieties which will afford a succession in ripening and will be more resistant to blight than those now grown.

Pear breeding mainly is directed toward this latter object, since pear blight has become so serious as to threaten the existence of the industry in many sections of the United States.

IMPROVING OUR PEACHES

Wight has more general objects in view in his work with the stone fruits. He seeks to originate better canning varieties of peaches, none of the varieties grown in California for canning being [illegible] satisfactory. Such varieties as Tuscan and Phillips proved very unsatisfactory last season. The Tuscan is more or less red at the pit and a large proportion of the fruits have had split pits making it objectionable for canning.

[illegible] of the great care exercised last year in California quantities of [illegible] were found among Tuscan [illegible] the quality of the [illegible] the canneries to [illegible] fruit while the [illegible] yellowish color necessary for a first-class product. It is the aim of peach breeding to overcome these defects, to secure varieties better adapted to canning and to increase the length of the peach season by developing earlier and later sorts.

Probably only one pear is of satisfactory quality. This variety, the Palora, is comparatively new and has not been planted extensively.

Much the same object is sought with prunes, though here the chief characteristic desired is size, with drying qualities equal to the French. Early rains in the Sacramento Valley have ruined many prune crops and it is this seasonal condition that must be considered in prune development.

CROSSING GOOD APRICOTS

Wight is trying to secure later-flowering varieties of apricots, which will minimize losses from late spring frosts; also to increase the number of sorts and extend the apricot season. There is now only one fairly satisfactory commercial apricot in the chief growing sections of Central California. Other sorts either ripen unevenly, are small or have poor quality.

With the objects outlined this botanist already has made nine crosses with apricots, varying the number of seeds from seven in case of Luizet and St. Ambrose to 57 between Blenheim and McKinley.

He has crossed three prune varieties in two crosses and four pears in three crosses. With peaches he has done his most important work, having brought some 40 varieties into 30 crosses.

The breeding has been carried on at the trial orchards of the California Nursery Company, Niles; in the orchards of E. L. Fellows, Saratoga; J. Gilbert Smith, Los Altos, and James Griffin, Cupertino; as well as on the Stanford campus.

Pollen was obtained from various orchards in the Sacramento and San Joaquin valleys, located at different points between Marysville and Fresno. The only purpose Wight had in mind in gathering pollen from many sources was to secure fertilizing material from varieties having certain definite characteristics.

IMPROVING PERSIMMONS

The Government work will be carried on chiefly at the Stanford station during the rest of the time. Pears and persimmons have been planted to supplement peaches, prunes and apricots. Although the public generally is not familiar with problems of persimmon and pear growing, both these fruits occupy important places in the fruit industry.

Except in a few other favored districts, pears are afflicted with fire blight. Bartlett and Bosc, two varieties of great commercial value, are both susceptible to this disease. Wight has crossed a Chinese pear, which is resistent to the disease and is of fair commercial quality, with Bartlett, Howell and other excellent sorts.

Persimmons probably are the most peculiar fruit grown in California. In order to be edible the astringent substance which this fruit contains must be ripened until it becomes quite mushy. The persimmon tree is unique in that some varieties will bear fruit even though not pollinated. Types ordinarily not astringent have this quality if not pollinated.

From a trip through the State several months ago Wight brought back 235 persimmons of 60 varieties, only a few of which are commercially valuable. From the better specimens he planted seeds, hoping to get from them good pollen-producing types.

The business of breeding fruits is slow at best. Wight has been in California four years on his present mission. He has conducted similar projects for the Government since 1900, with the single exception of a six months' exploration trip into Chile, Peru and Bolivia.

Eight years, however, is not as long a period to him as to most mortals. Consequently, he speaks of results which he cannot hope to obtain for six years or more as though they would materialize tomorrow. Meanwhile he will repeat his plant breeding processes twice each year in an endeavor to send sweeter and better fruits to America's breakfast table.

Treat Dormant Trees

FRUIT trees remaining dormant at this season of the year should be sprayed with whitewash, in order to prevent sunburn injury, recommends a conference of agricultural authorities which recently met to consider this condition. To make the spray, add 75 pounds of hydrated lime to 200 gallons of water. The liquid and chemical should be put into the tank at the same time, gradually, with the agitator in operation.

The cause of delayed foliation and blooming is believed to be due to an usually high temperature and bright sunlight, with low humidity, in February, followed by colder weather in March. Severe dry winds in the fall and winter, together with unseasonably dry weather, are considered contributing factors.

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IN addition to publishing many articles by specialists of the State Agricultural Experiment Stations and Extension Service, ORCHARD and FARM maintains an eminent staff of associate and contributing editors, including such widely-known authorities as

J. D. BIXBY SR. — Bees and Apiculture
LUTHER BURBANK — Famous Plant Breeder
DR. J. ELIOT COIT — Citrus Fruits
RALPH D. CORNELL — Landscape Gardening
W. J. DRYDEN — Poultry
W. S. GUILFORD — Livestock; General Farming
W. H. GARDNER — Power Farming
ROBERT E. JONES — Dairying; Special Articles
FLAVIA GAINES LEITCH — "The Countrywoman's Club"
RALPH G. RISSER — Vegetable Gardening
HELEN TEMPLE — Floriculture
GEO. P. WELDON — Deciduous Fruits

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Agricultural questions answered by staff members free of charge. Enclose stamp for reply by mail. Address ORCHARD and FARM Editor, Examiner Bldg., Los Angeles, Cal.

TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY

By THE EDITOR

TREES ARE GOOD FRIENDS—This is the season when we really appreciate the value of shade trees. During these hot summer months, as you pause to rest in the friendly shadow of some towery, leafy giant, or travel along a highway lined with verdure, pause and visualize that same location barren and treeless.

During the planting season we are apt to forget just what trees really mean to us and it is but natural we should postpone indefinitely our plans for beautification of road, town, school and farmstead.

During the past winter ORCHARD and FARM published many articles on this subject, and we shall publish more, because we feel that nothing will produce as big returns at such small expense as the planting of more trees and shrubbery throughout the length and breadth of California.

Next winter, when we are reminded of this important matter again, let us pause and recall observations during "dog days." Then we shall be more inclined to obey that good impulse.

DRAINAGE OUR GREATEST PROBLEM—Almost every great irrigated area in the world at some time has presented the problem of drainage. Some of the Old World countries met and solved that problem before Columbus discovered America.

Here in the Pacific West we are confronting it today. Perhaps it is Nature's final despairing protest against interference with her plans; at any rate, in almost every case where extensive irrigation projects have been undertaken, it has been necessary to provide for drainage.

Modern development engineers anticipate this need and combine the two systems in the beginning, but many of the older districts are spending tens of thousands of dollars to dispose of excess water and the resultant alkali salts.

The engineers go further than simply providing ditches or pipe lines to drain away the excess water. Now they are lining irrigation canals with asphalt or concrete and controlling seepage, at the same time preventing waste. In fact, this drainage problem has any number of angles, depending always upon local conditions.

Every farmer who irrigates, whether using ditch or well water should post himself upon drainage problems and methods, and every irrigation district should anticipate future conditions by providing as large a fund as possible for improving both the distribution and the disposal of water.

AGRICULTURE MORE THAN PRODUCTION—It has been the constant aim of the University of California (especially the Agricultural Extension Service) to consider agriculture in a very broad sense—not simply as a means of producing food, but as an environment for the family.

It is realized the efficiency of American democracy depends upon a stable rural civilization. This involves the social side of country life—community betterment, improvement of educational facilities, and development of the country home so that it will be an ideal place in which to live.

All these things, of course, depend for their accomplishment upon the farmer's securing an economic return equivalent to that received by city residents of equal ability *(Continued on Page 10)*

WHAT'S NEW? *Keeping Abreast of* Agricultural Progress

University Makes Soft Drinks

THOUSANDS of bottles of carbonated, sweetened fruit beverages have been manufactured and distributed at the fruit products laboratory, Hilgard Hall, University of California, Berkeley, where a complete bottling plant is maintained for the purpose of popularizing soft fruit drinks and showing how they may be made and preserved.

Arizona Bulls Wear Shoes

IN ORDER to protect their feet from rough rocks on mountain ranges some bulls recently imported in Arizona from the Middle West are provided with shoes similar to those worn by oxen used for road work. Unless thus protected the bulls are apt to remain near water holes, or refuse to come down from high table lands over rough, rocky trails.

Oregon Revives Flax Growing

FIFTEEN flax pulling machines, costing $2250 each, are this season to be purchased by Marion County, Oregon, growers and used in processing the 1924 flax crop. In order to encourage the revival of flax growing in Oregon the State and the Portland Chamber of Commerce will assist in financing the purchase of the pulling machines, which are to be imported from Toronto, Canada.

Increasing Citrus Acreage

TWO-THIRDS of the citrus trees in California, which have not reached bearing age, are Valencias, although less than half of the bearing orchards are of this variety. Fifteen hundred acres of grapefruit trees recently have been set out in the Imperial Valley. More lemons, as well as pomelos, are being planted in Imperial County than any other in the State, according to the California Agricultural College.

Corn, 300 Bushels Per Acre

AS HIGH as 300 bushels of corn per acre is grown in the Philippine Islands, according to Mark Baldwin, who recently has been investigating conditions in that country for the United States Department of Agriculture. The soils on which such heavy crops are grown are similar to those of the corn belt in the United States, but three and sometimes even four crops are raised in 12 months. Indian cattle and carabaos are used for field work.

California Imports Pickles

THREE carloads of dill pickles and 15 cars of salted stock last year were shipped into California from Oregon, where the California Packing Corporation has a large pickling plant at Gervais. Last year this factory handled 600 tons of "cukes," for which growers were paid $20,000. The gross returns from the crop averaged $230 per acre. Additional acreage was planted this year and new plants are to be erected at Woodburn and Albany.

Milkweed Poisons Cattle, Sheep

WOOLLY-POD milkweed, which grows abundantly in parts of Western California, is very poisonous to cattle, sheep and possibly horses, according to the United States Department of Agriculture. Animals are not likely to eat this plant except when other forage is scarce, as is the case this dry year. Only a very small quantity is required to inflict serious injury or death, even when the dried weed is eaten in hay.

Cut Off 12,000 Rat Tails

AS a result of a recent anti-rat campaign in Little Rock, Ark., 12,000 rat tails were turned in by killers. Nearly $2000 was paid out in bounties to those who assisted in destroying these loathsome rodents, which are found in great numbers in some California communities.

An ordinance was passed providing for the construction of rat-proof buildings and a woman inspector employed to see that this law and the one relating to garbage disposal are obeyed.

Children Leave Beet Fields

A RECENTLY invented beet harvesting machine will make possible the complete "tractorization" of sugar beet growing, according to the National Association of Farm Equipment Manufacturers. The new implement is tractor drawn and digs, tops and piles four acres of beets in one day. Plowing and pulverizing the soil, seeding and cultivation already are accomplished by tractor-drawn implements.

As a result of the new invention, the elimination of child labor from beet fields is anticipated.

New Tropical Forage Grass

GUATEMALA grass, new tropical forage plant, recently has been introduced into Florida, where it is being used on a large scale by dairymen in the southern part of the State. The stems sometimes attain a diameter of two inches, but are tender and succulent, even to the base, and are greatly relished by cattle and many other animals, according to the United States Department of Agriculture. The grass is extremely leafy and produces an immense amount of forage. Usually it is fed green, but it is believed excellent silage can be made from Guatemala grass.

As seeds of the new plant are not yet available, it is propagated by dividing the clumps and using the lower part of the stems. One joint is placed every forty inches in rows eight feet apart.

Supplying Fig Fertilizers

IN ORDER to assist members in getting a supply of insects for fertilizing figs, the California Peach and Fig Growers' Association this year compiled and distributed a list of 30 orchards from whom capri figs might be obtained. This fruit contains insects which escape and carry pollen to Calimyrna figs, when hung in trees where the latter are growing.

Raising Mealybug Predators

THE Los Angeles County Insectary is propagating cryptolaemus at the rate of 2500 daily. Nearly a quarter million of these insect predators, which prey upon mealybugs, were raised during the month of May. In the Rivera district 30,000 adult beetles were released upon 3000 trees. Pending the completion of the new insectary building, the work of propagating beneficial bugs is being carried on in temporary quarters in Rivera and Los Angeles.

Dry Year—Plant Sudan Grass

THE Extension Service advises the planting of Sudan Grass to take the place of alfalfa, corn and other forage plants which, on account of dry weather, have not made the usual growth this season. In the San Joaquin Valley alfalfa was reported to be selling at $16 to $18 a ton during the month of May, compared to $8 at that period last year. South of San Francisco many dairymen will not raise enough corn to fill their silos, reports the California Dairy Council.

Freezing Eggs in Los Angeles

AN egg freezing plant recently was opened in Los Angeles by Kalin Brothers, who operate similar factories in Duluth and Chicago. The California plant is expected to employ 100 persons.

The eggs are chilled before being broken, after which the yolks are separated from the whites and each subjected to a temperature of 20 degrees. All the processes are purely mechanical. Frozen eggs, of which 13,000 tons were imported into this country from China and Japan in 1922, are used mostly by bakeries.

Growing More Soy Beans

THE acreage devoted to soy beans in the United States increased last year 225,000 acres, according to the United States Department of Agriculture. The total production of hay from this nutritious legume was 1,155,000 tons. The greatest increase in acreage was in Illinois, where 13[illegible],000 acres were planted to this crop in 1923. Formerly soy beans were little grown outside of Southern States, but in recent years this plant has pushed its way into Northern popularity. The proper time for cutting is as soon as the pods are well formed.

THEY SAY

"Farmers Forced to Diversify"

H. A. WEINLAND

Farm Adviser, Sonoma County

H. A. WEINLAND

AMERICAN agriculture may be divided into three periods: exploitation, specialization and diversification. The first was marked by soil robbery on the part of grain farmers and stockmen who overpastured the range; the second by raising only one crop in districts which were found best suited to that particular branch of farming; the third and last by grain, stock and fruit farmers being forced to diversify as the result of decreasing yields and low prices.

During the past few years the farming industry has suffered from the reaction which resulted from overproduction of certain crops, caused by abnormal demands during war times. Whether they like it or not, farmers are being forced to diversify. Even the Federal Government is adopting the policy of requiring stockmen to run both sheep and cattle on forest ranges because it has been found that pasturage is improved by alternating these two kinds of animals.

Here in California an increasing population requires more diversified food production, while long-continued growing of one crop—whether it be grain, fruit or vegetables—has depleted the soil of certain necessary elements, forcing the owner to grow other crops. Poultry, hogs, sheep and dairy cows are invading the orchard districts, while large grain and vegetable fields are being cut up into small tracts devoted to diversified farming.

One way for a farmer to succeed [illegible] far enough to keep one jump ahead of his [illegible]tors. Some pork producers, for example, [illegible] Tamworth and other bacon breeds are [illegible] dominate the C[illegible] [illegible] hogs do not yet command the premium [illegible] which [illegible] [illegible] the [illegible] be in that direction and [illegible] ming their [illegible] for the [illegible] soon will blow from that quarter.

Lining San Joaquin Canals With Concrete

Vast Improvement Project Prevents Water Wastage, Increases Canal Efficiency and Lessens Need of Drainage Works

By VERNE SCOGGINS

IT isn't hard to visualize an irrigation district in which the ditches and canals are lined with a waterproof substance—concrete, for instance—and in which the waste of water is so small that evaporation is the greatest source of loss. The expense, labor, faith and co-operation needed to bring about this very desirable condition, however, are very great.

This valuable improvement gradually is gaining in significance in San Joaquin Valley. The canals which have carried water from the Sierra Nevadas to the semi-arid portions of the valley and the laterals which have made it possible to convert this land into garden spots, run for miles over sandy soil through which water penetrates rapidly. Gradually, as funds from a limited source become available, these ditches and canals are being lined with concrete and asphalt.

DRAINAGE DELAYS LINING

It has cost huge sums of money to get water onto valley land, but the transformation which resulted is considered well worth the extra heavy tax. However, as years passed, uncontrolled seepage and excessive irrigation raised the water tables in the older districts to such an extent that drainage problems required attention. Today drainage is the real big problem in practically every large irrigation district and is forcing large expenditures.

Because this work is needed for immediate relief it is not strange that the lining of irrigation ditches is more or less of a secondary consideration. It should not be forgotten, however, that the latter is the ultimate solution of many drainage problems.

In every district which has ditches running through sandy soil there is a mutual understanding that all funds which can so be diverted shall be used for lining ditches. The result is that each year several miles of ditches are lined and it is only a matter of time when the major part of San Joaquin's big irrigation systems will be watertight.

An engineer of one of these districts is authority for the statement that 40 per cent of the water in San Joaquin reservoirs is wasted or lost before it can reach the field. When this fact is considered in connection with the danger from high water tables which result from uncontrolled seepage—the reason for this conservation program is better understood.

DISTRICT SPENDING $550 000

Ditch lining offers one means of lessening seepage and holding down the water table and in addition reduces maintenance costs and permits the water to flow faster. Conservative and enlightened use of water by farmers is another means of holding down the water table and one which is being [illegible] in all districts. The latter [illegible] little and has tremendously [illegible] results as engineers testify. [illegible] hundreds of miles of [illegible] to carry water into all [illegible] would be [illegible] could [illegible] Di[illegible] [illegible]

with lining programs which permit expenditures for other needed improvements. The merits of lined ditches were proved long ago by experiments with canal curves and fills.

The South San Joaquin Irrigation District, which embraces some 70,000 acres in the southern part of San Joaquin County, is one of the best examples of a district which has launched an extensive and definite ditch lining program. It is now on the first lap of a $550,000 program for bettering drainage conditions and conserving water.

SAVING $125,000 ANNUALLY

Until last fall the mileage of lined ditches in the district was confined to a number of fills and curves. When the water was turned into the canals this spring over 10 miles of ditches had been lined and by next spring it is expected over 50 miles will have been lined.

What this improvement means to the community is best explained with figures supplied by George K. Parker, district engineer. It is estimated that the lining of 50 miles of ditch will save the district approximately $125,236 in one year, not counting the saving of land and crops that might have been ruined by a high water table.

The lined ditches will prevent the loss of 70,000 acre feet of water, or enough to cover the entire district one foot deep. In addition, the project will save the cost of 45 drainage pumps which otherwise eventually would have to be installed to prevent a disastrous rise of the water table.

Farther down the valley, in the Turlock Irrigation District, there is a good example of the diversion of all available funds for ditch lining. In 1916 the district, which is one of the oldest in the State, started this project. Over 50 miles of main canals have been lined, at the rate of seven or eight miles per year. The Merced and Modesto irrigation districts also line a number of miles of ditches each year and already have completed an extensive mileage.

INCREASING WATER VELOCITY

The Modesto Irrigation District had well over 180,000 square feet of ditch lined last fall and winter and the Merced Irrigation District laid in the neighborhood of 165,000 square feet of lining during the same period. A. L. Cowell, attorney specializing in irrigation matters, says of the Merced district: "We are lining ditches just as fast as we can stand the expense."

B. V. Meikle, engineer of the Turlock district gives as a reason for lining ditches the possibility of narrowing the stream and thus increasing the velocity of the water. In his district the width of the old earth canals ranged from 14 to 20 feet at the bottom. These ditches are being completely and carefully worked over and the new bottom is constructed from four to six feet in width. This practice takes considerable time, but greatly increases canal efficiency.

The Turlock district operates only main canals of which it has approximately [illegible] Members of subsidiary associations operate 800 miles of laterals tapping these main canals. The district expects to keep up its canal lining until the entire main system is lined, Meikle states, and the district feels that money spent on canal lining has returned greater value than funds expended for any other improvement purpose.

The attitude of the majority of irrigation district directors in the San Joaquin Valley is well summed up in the following statement made by a Merced district official:

"Other improvements which can't be delayed are preventing our adopting an extensive lining program, but we are going to keep on lining as much ditch each year as we are financially able to do until all the bad stretches are watertight."

Two processes are used in lining ditches. Practically all of the districts have tried both. One lining is of asphalt, which is applied by hand, and the other is concrete, which is applied under pressure from a spray gun. For the latter process the ditch is lined with a heavy wire mesh and the concrete sprayed on, making a reinforced concrete lining 1½ inches thick. The asphalt lining is applied hot and compressed with rollers and tampers.

Above—Canal lined with concrete, which prevents seepage, saves water and increases velocity, making it possible to use smaller ditches. Right—Applying concrete with a spray "gun." This improvement is being made as fast as finances permit.

Buy, Eat Small Oranges

THE housekeeper who is accustomed to seek for very large, juicy oranges for serving on her breakfast table will find it an economy to buy the smaller sizes for all other uses and occasionally to serve orange juice in glasses instead of half oranges. Owing to weather conditions and other local factors this year's crop of oranges, which is abundant, contains a high percentage of small sizes, which frequently may be bought for considerably less per pound.

A small orange may still be a very good orange. Oranges which pack 250 instead of the more desirable 126, 150, or 176 to the crate are obviously too small to be cut in half and eaten comfortably with a spoon, but may be squeezed for orange juice, not only for the baby but for every member of the family.

A great many persons habitually take their breakfast orange in a glass, and even if it requires two smaller oranges to get the usual amount, this should not be an objection if the two can be bought more cheaply than one larger one.

Now is the time to have orangeade or orange punch at card parties, sliced oranges in custard for dessert; fruit salad with orange predominating; orange-cake frosting and filling; orange gelatine made with pure juice; orange pies and home-made orange marmalade. In buying the fruit for any of these purposes, the smaller, lower-priced oranges may be used with no reduction in quality.

Fig Trees Robbed Olives

FIGS and olives interplanted proved an unsatisfactory combination for Dr. J. W. Hardin of Corning.

Some Calimyrna trees were set in the Sevillano orchard planted by a former owner. Figs succeed with very little moisture, but when moisture is plentiful they use it, and on this ranch they rob the olives in the fall.

When irrigation is applied so as to help out the olives, it causes the figs to sour. Olives on the ranch are more profitable than the figs so that a number of the latter have been removed. —T. F.

Bee Notes

By J. D. BIXBY SR.

HEAVY PRODUCTION NOTED—The orange blossoming season just closed has been the most remarkable in profusion of bloom that has occurred in a decade.

J D BIXBY SR

Nectar secretion during the last two weeks of the period was as profuse as the bloom, and where bees were of normal strength, an excellent harvest of honey was secured. The yield obtained ranges from 25 to 40 per cent of normal, according to buyers for honey brokers who are now picking up small lots of orange honey.

OVERSTOCKING IS DANGEROUS—Overstocking seems practically impossible during a good season and during the main honey flow from orange, but before and after this period, it means death to all but the strongest colonies.

On a range which would support 5000 colonies during the main flow, fifty would nearly starve the rest of the year. This means moving at least twice every year, which is anything but fun. Remember this when you are told that California is the "beekeeper's paradise."

BEES ARE BEING MOVED—Now that the orange bloom is over, great numbers of bees are being moved out of the citrus districts to the sage, the lima-bean fields and the alfalfa fields of the great central valleys.

On account of drouth conditions in Southern California more bees than usual are being moved to the alfalfa and sweet clover pastures of Utah and Idaho.

COMB HONEY PRODUCER SUCCEEDS—One comb honey (in pound sections) producer in the San Gabriel Valley has been very successful, his apiary of about 140 colonies yielding nearly two cases per colony of as fine orange blossom honey as I have ever seen. The crop is already sold and mostly delivered, at a price that will net a profit of close to $10 per colony.

GOOD RECORD IN "OFF" YEAR—A small apiary of 72 colonies was moved down from a mountain range to the oranges in December last. It has just yielded 1200 pounds of blend mountain honey (stored last year), 4000 pounds of fine white orange and 20 good swarms as increase.

Two colonies became queenless and unprofitable and one contracted disease and was destroyed. Not so bad for an "off" year.

CAN'T FIX HONEY PRICES.—No use trying to "fix" the price of honey; it is bound to be but temporary. Supply and demand are the main factors of the market; next to these is distribution—perhaps it is next ahead of them. Los Angeles is a great market for comb honey, the greatest on the Coast. This year she had on sale at the same time comb honey from the white clover and blue-sage (borage) regions of West Virginia and the alfalfa and sweet-clover fields of Idaho.

UNWARRANTED PERTURBATION—During the height of the orange bloom a farmer-beekeeper telephoned me from a neighboring town: "What's the matter with my bees; they don't seem to be doing anything?"

"Are your colonies strong?" I inquired.

"Yes; seems to be plenty of bees."

"And is there no honey in the hives?"

"Oh, yes; honey is coming in good."

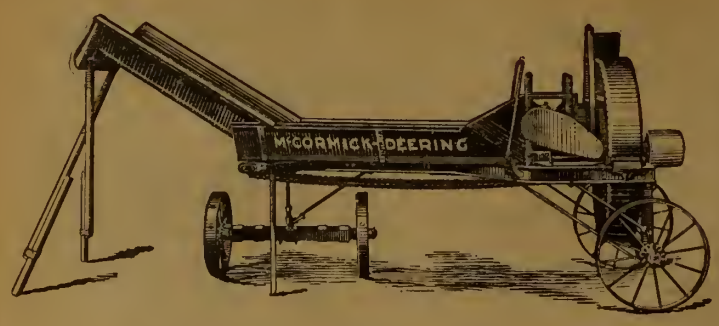
"Then what is the trouble?"

"Well, they don't seem to be doing anything in the field. The trees are white with bloom but one cannot see more than a few bees on a tree. Thought perhaps they were lazy or had become diseased."

I laughed and told him to get his pencil. Here were easily 10,000 acres of orange trees within flight range of his bees, each acre with approximately 100 trees—a million total.

He had 100 colonies of bees, with, say 50,000 bees in each, half of which were of field age, the balance being house bees or sent out for water, propolis or pollen—for a bee must gather several things besides honey. Wouldn't this be two and one-half bees per tree? And if each tree had 5000 blossoms—

Well, I told him to go wash the honey off the horses, lean his overalls against the back porch, and get ready to put on some more supers!



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When answering advertisements please mention Orchard and Farm

Winning Fresh Fruit Premiums

Timely Suggestions on Preparing Orchard Products for Horticultural Exhibits—How Entries Are Judged

By F. W. ALLEN
Division of Pomology, University of California

PLANS are rapidly taking definite shape for many community and county fairs to be held during the next few months. Such fairs, aside from furnishing a few days' recreation, have a high educational value and furnish an excellent means of advertising the products of the section.

The first fair of a community usually is a real surprise to those who attend; the excellence of the products shown exceeds their expectations. There is experienced a greater feeling of pride and confidence and the friendly rivalry created for the premiums is a further stimulus for better production.

The community fair by nature is not large and the exhibits are all "home grown." This, however, need not be a disadvantage if there are a large number of exhibitors. Too many often hesitate to enter competition because they are fearful of being outclassed.

Yet at practically every fair at which the writer has judged, someone in looking over the exhibits has remarked in a low tone, "I could have beaten that if I had only brought mine."

Now there is time to "bring yours" this year and make your plans for doing it whether you expect to win or not. It will help the fair and if you do not secure a premium this year, you may the next. The following suggestions may be helpful in assisting you to secure a ribbon:

STUDY PREMIUM LIST

First of all, one should know that premiums are offered only for certain products, and in order to have a comparable basis of competition of the different articles, certain rules must be observed.

Most fairs, several weeks or even months in advance, issue a premium list which gives all of this information. Secure one of these, look it over carefully, and get well in mind the rules governing entries, the number of specimens required, method of labeling and time the exhibits should be in place.

Premiums generally are offered for several types of exhibits. The majority of these are for the best specimens or "plate" of a single variety. With most fruits, five specimens constitute a plate, although with the smaller fruits, such as some of the plums, the rules may call for from 10 to 20 specimens. This type of exhibit offers opportunity for a large number of individuals to compete in one or more classes. The best exhibits of each class then are eligible for the sweepstake premium where one variety competes with another.

Other premiums are offered for the largest and best collection of fruits, or fruits and vegetables. At one small community fair 52 different articles from one grower were on display. Naturally, there are a less number of exhibitors in this class and the general quality of the products is scarcely as high. A well arranged general exhibit of this character, however, is the best advertising feature the individual grower can have and the more in the competition the better.

EDUCATIONAL EXHIBIT POPULAR

Within the last few years much interest has been taken in displays portraying some special agricultural activity of a certain community or farm center. These are highly educational and the exhibits often presented in the most attractive way.

Having become familiar with the rules governing exhibits, the amateur exhibitor should next learn the principle factors to consider in the selection of the individual specimens for his entry. With fruits there are at least five or six main considerations:

(1) CONDITION AND FREEDOM FROM BLEMISHES.—Condition refers to the degree of ripeness or the physiological development of fruit. Overripe fruit should not be shown except in the case of early ripening varieties which normally would not be expected to be in good condition at the time they are shown.

Fruit for exhibit purposes is always expected to be of more than of average quality. Its condition and the degree to which it be free from blemishes, therefore, is the most important single item for consideration. Blemishes include mechanical injuries such as bruises, twig or stem punctures, or loss of stem, and any indication of insects or fungus disease. If only one specimen of the five reveals any such injuries and blemishes, the entire exhibit may be disqualified from competition.

(2) UNIFORMITY — Many exhibitors fail to realize the importance of this point. All specimens on any place or in any container should be as near of the same shape, size, color and degree of maturity as it is possible to select them. One extra large or highly colored specimen should never be shown with others of less size or color. Uniform fruit of medium size, and perhaps inferior quality, often will win over extra fancy fruit, poorly selected or graded.

(2) SIZE—It is quite a common impression that the largest fruits are the best. While, as a general rule specimens should be chosen which are slightly larger than the average for well grown fruit, too much emphasis should not be placed upon size. In fact overgrown specimens in most instances are apt to be of poor form and quality. Occasionally the premium list will offer a special prize for the largest specimens. In this case, size, of course, is the one primary consideration.

(4) COLOR—Fruit of good color is always more attractive than that possessing inferior quality. In pomaceous fruits a high, clear color is desirable in all of the red-blush or striped varieties. Yellow fruits should possess a clear, attractive color characteristic of the variety. With stone and vine fruits, the highest color possible usually is to be desired.

(5) FORM—The form or shape of the fruit should be the normal type for the variety as grown in the local district. This indicates trueness to type, which is a valuable characteristic in fruit, for both commercial and marketing purposes. It often occurs that some varieties of fruit as grown in a given district are characterized by a rather rough form. In such instances it would be a mistake to select smooth specimens for exhibiting.

(6) QUALITY—Quality, as related to texture or flavor, usually is considered only when one variety is competing against another, and is not a factor in connection with plate displays.

START SELECTION EARLY

The first selection of fruit for exhibition is made in the orchard where there is the largest quantity from which to choose. In fact, it is very desirable to note the location of certain outstanding specimens or to mark certain branches of a tree several weeks in advance of harvesting. By proper thinning and extra care, the finest specimens may thus be obtained.

Several times the number of specimens or quantity of fruit required for the final sample, should be selected. This is especially true where the normal harvest season is several weeks previous to the fair and with such fruits that are likely to become overripe before they are to be shown. From this rather large sample of selected fruit, the most nearly perfect specimens are chosen for the final plate or box. Each fruit should be examined quite carefully and critically, keeping in mind the factors of uniformity, condition, size, color and characteristic form as mentioned above.

These are the bases upon which the judge will decide whether you or your competitor will win. Not infrequently some little point of seeming insignificance may throw what is otherwise a very fine sample of fruit out of competition altogether.

Special care should be taken to secure specimens free from insect injury. In many instances such injury is very inconspicuous but the judge has learned to be suspicious of any minute worm hole or slight discolorations indicating the presence of some scale or fungus disease.

Stems never should be removed or missing from fruit normally harvested and sold with them attached. Careful handling and attention should be given to avoid stem punctures. Fruits, of course, should always be clean and free from spray residue.

Apples and pears may be polished to some extent but stone fruits possessing a natural bloom should not have this removed. Peaches may be wiped very slightly but for the most part should retain their normal pubescence.

All varieties should be correctly named in order to compete in its proper class. Any new or unknown variety of promise may be exhibited as a matter of interest but only rarely do small fairs offer premiums for such fruits.

STANDARDS OF PERFECTION

A number of reserve specimens should always be available in order to replace any of those on the plate or in the box which sometimes are removed or begin to show poor condition before the day on which the ribbons are placed. It is advisable for the exhibitor to watch his display rather closely respect

Only in cases where competition is quite close do judges as a rule resort to the use of a score card. However, there is always in their minds a standard of perfection by which they value the different entries. In order that the grower may be familiar with the standard of perfection most generally used the following score cards are given. These will indicate the relative value of the different factors previously discussed.

APPLES and PEARS—Form 15

... color, 20, uniformity, 20; freedom from blemish, 30, total, 100, quality, ... total, 125.

PEACHES and CHERRIES—Form, 10; size, 20, color, 25; uniformity, 20; freedom from blemish, 25; total, 100; quality, 25; total, 125.

PLUMS—Form, 10; size, 25; color, 20; uniformity, 20, freedom from blemish, 25, total, 100; quality, 25; total, 125.

GRAPES—Form of bunch, 10; size of bunch, 15; size of berry, 10; color, 10; uniformity, 10; freedom from blemish, 10; quality, 20; firmness, 5; total, 100.

Points considered in judging vegetables vary slightly from those of fruits and also the different vegetables. In the main, however, the points of excellence are rather similar. Firmness and meatiness of flesh is of primary importance in the tomato, while smoothness and shallow eyes are very desirable in the potato.

Where the premium list calls for the largest and best collection of varieties, the awards usually are based upon the three following considerations:

Number of varieties..33 1-3 pct.
Value of varieties......33 1-3 pct.
Condition of varieties..33 1-3 pct.

There is no official method of scoring fruit in trays or baskets, but in addition to the points already covered, the alignment and compactness of fruit, the material constituting the package, method of labeling and general attractiveness all are taken into consideration. Be sure to see that the fruit on the bottom of the package is just as large, well colored and carefully graded as that on the top.

In the staging of district displays, quality, variety and arrangement are the outstanding features. The score cards used for these at some large fairs are: Quality, 60 points; variety, 20 points; arrangement, 20 points.

This, of course, can be modified in case it seems desirable to put less emphasis on quality and more on variety or originality of staging. Displays of this nature generally are prepared by a small committee for the special purpose. Each member of the committee should look after some particular part of the work such as collecting the material, decorating or putting in place.

In order to make the exhibit truly representative of the community, the committee must have some assistance upon the part of the growers in contributing their products. Arrangements should be made with the fair management some little time in advance for the approximate amount of space desired.

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Radio on the Farm—IV—Political Significance

By DR. RALPH L. POWER

"The Sky Crier," Los Angeles Examiner Radio Studio

THERE is a political significance attached to radio on the farm that perhaps is not apparent at first thought. The power of personal appeal to the voter is a vital factor in politics and oftentimes considerable difficulty is experienced by candidates who want to reach voters direct.

DR. RALPH L. POWER

The politician who has a message for his constituents now can send his voice through the air and reach thousands. A year or so ago Senator New of Ohio was unable to keep an appointment to address an immense gathering of women in his home State. He kept his promise to speak to them, however, by installing a large receiving set in the clubhouse in Ohio and his address was broadcast from Washington, D. C.

Officeseekers of today, to all intents and purposes, can make a direct call at the homes of people whom they have never before been able to reach. They can put real personality into the talks and reach thousands at a time. Women on the farm likewise must be reached because of their enfranchisement, and radio solves the problem that for years has worried political aspirants.

Particularly where ordinary means of communication are lacking, or are inadequate radio reigns supreme on the American farm and it is proving a boon not solely as a source of amusement or information but as a convenience also.

One enterprising farmer of the Middle West has rigged up a small amateur station and his wife broadcasts the dinner call to him each noon. He picks the message up on a miniature receiving set and scurries home across the corner of his big holdings.

Many of the largest hotels and the more modern apartment homes now have radio systems. The latest is a system of three separate receiving sets in the office, with lines running to each apartment with three plugs installed. The tenant then can plug in on any of the three local stations. Co-operative central receiving stations owned by a number of neighboring farmers may be the next rural radio development.

There will be receiving plugs in the barns, in the bunk house, in the farm house, in the automobile repair shop and in other places. Then you can plug in on Senator Whoosis' station for a political speech, on Los Angeles for crop reports, New York for musical comedy or whatever you desire.

Bulb Growing on Monterey Peninsula

A FEW years ago practically all the bulbs used in this country were imported from Holland. Now California not only supplies practically all the bulbs used in this country, but is invading foreign markets, even shipping to Holland.

A large share of this bulb production nature has allocated to the Monterey Peninsula. Almost over night bulb production has become an important industry in Pacific Grove, one of the principal Peninsula cities. The soil is just right, being mellow and sandy enough to prevent packing and baking. The climate is congenial and offers unsurpassed advantages of pollenation and the growth of new varieties.

Pacific Grove long has been famous for her wealth of flowers. A beginning with bulbs was made by growing the dahlia, a native of old Mexico. In 1872 this royal flower was brought to the attention of the public and named after the Swedish botanist, Dr. Dahl. From a small beginning in Pacific Grove dahlia culture has grown into an industry of prime importance on the peninsula.

Dahlias bloom continuously from June to November. During these months the dahlia gardens of Pacific Grove are the mecca of thousands of tourists. Colors, hues and shades run riot. There are dahlias like sunsets and like flame; dahlias shading from amber to gold; dahlias of Mandarin yellow, copper, vermeil and bronze; dahlias holding the burnished beauty of autumn leaves, the gorgeous livery of bright summer and the ineffable hues of spring.

The months of November and December find the tubers ready for harvest. The clumps are separated and stored to await the packing season. Shipments for the South, the Hawaiian Islands and the Orient begin in January; for the Pacific Coast section in February and March; while Easterners are ready to plant dahlias about April or May.

That the Monterey Peninsula is the natural home of this flower is proved by the fact that dahlias from this locality have won prizes all over the world. One local dahlia grower won the Gold Medal, highest possible award, for the best general display at the Panama Pacific Exposition in San Francisco in 1915. Pacific Grove dahlias won thirteen prizes in 1922 when displayed at the flower exposition in Tarrytown, New York. The growers of this section have originated more than 500 dahlia varieties.

While the Pacific Grove dahlia industry has seen persistent growth for about 15 years, gladioli bulb farming has grown with remarkable rapidity in this locality.

Expert growers declare that bulbs grown here produce finer flowers than those grown elsewhere in this country or abroad. There are a number of gladioli growers in Pacific Grove who have produced new varieties of widely acknowledged merit.

The use of gladioli as cut flowers has scarcely begun. The gladiolus may be shipped long distances without loss of its freshness and beauty. It is easy of culture, can be grown upon inexpensive land and its market is expanding rapidly.

Other bulbs that are increasing in popularity are the crocus, hyacinth, freesia, ranunculus and narcissus.—A. C. JOCHMUS.

Healthy Livestock in Tehama

FARM ADVISER SMITH of Tehama reports a condition of 100 per cent health in the sheep and cattle of the county.

A careful and detailed survey was made to detect suspicious animals in connection with the foot-and-mouth disease, but of 120,000 sheep and 20,000 cattle inspected, not one animal was found sick in any way.

Then a few days after the survey was completed 11 head of sheep died suddenly from eating some poisonous plants.

THE COUNTRYWOMAN'S CLUB

This interesting new ORCHARD and FARM feature will have the support of thousands of farm women all over the Pacific West. Contest for our readers closes July 15. Write today to Flavia Gaines Leitch, executive secretary, care of ORCHARD and FARM, Examiner Building, Los Angeles.

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There are over 8,000 hardware, feed, seed and poultry supply dealers handling Carbola. Your dealer has Carbola or can get it from Ansel W. Robison, 1196 Market St., San Francisco, or from the Germain Seed & Plant Co., Los Angeles—both Wholesale Distributors of Carbola. If your dealer cannot supply you, order direct from the nearest of these two distributors. Satisfaction or money back.

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POULTRY

NAME CHANGED. Still hatching every week. Booking now for summer and fall chicks, from real layers. White Leghorns, R. I. Reds, Barred Rocks. Safe arrival of vigorous chicks guaranteed. Write for circular. Ravenswood Poultry Ranch and Hatchery, formerly The J. H. Stubbe Ranch, P. O. Box 67C, Palo Alto, Calif.

10c EACH—"Superior Strain" S. C. White Leghorn baby chicks. July delivery. Big batches and low overhead enable us to sell our high-vitality chix in accordance with our established policy: "Highest Quality at Lowest Prices." June chix all sold. Booklet describing our strain free on request. SUPERIOR EGG FARM, Anaheim, Calif.

CERTIFIED CHICKS for summer and fall months from accredited, free-range flocks, headed by cockerels direct from America's greatest specialists. Accredited "AA" grade chicks at single "A" prices. Send for catalogue. MUST HATCH INCUBATOR CO., INC., 432 Seventh St., Petaluma, Calif.

CERTIFIED White Leghorn Chicks from selected free range, high-producing hens mated with double pedigree cockerels with authentic trapnest records of 237-278 eggs. Certified by Alameda County Farm Bureau. Utility prices. CHANTICLEER ELECTRIC HATCHERY, INC., Hayward, Calif.

CHICKEN RANCH FOR SALE—On account of one of the owners of the well known "Dana Poultry Ranch" going to Europe, whole or half part of ranch, including bungalow, chicken houses, live-stock, etc., is cheap for sale on easy terms. Finest climate in California. Write R. R. 1, Box 167, Palo Alto. Phone 440M.

WHITE LEGHORN BABY CHIX of unusual value from especially well culled hens mated with full pedigreed males. Prices per 100: June $12. 100 per cent live, strong chix guaranteed. We are accredited by the Sonoma County Farm Bureau. THE PIONEER HATCHERY, 476 Sixth St., Petaluma, Calif.

THE WORLD FAMED FOWL—Russian Orloff and Halo Sacredo Turkens. Booking orders now for hatching eggs. Circulars FREE. Only breeder of GENUINE stock in America. GEO. SCHAEFFER, MENLO PARK, CALIFORNIA.

ORDER your W. L. pullets from Petaluma's finest raising plant! "Pullets that will not disappoint you!" Write for information. L. MUNCHIN, Reliable Pullet Farm, Petaluma, Calif.

PULLETS RAISED TO ORDER—White Leghorns from pedigreed trap-nested proven producers. All ages. MRS. H. GILLESPIE, Tres Pinos, Calif.

BABY CHICKS, all kinds, hatching each Monday. Ducklings, turkeys, hatching eggs. Pullets, pigeons, rabbits. FANCIERS' EXCHANGE, 640 S. Main St., Los Angeles.

HANSON'S PEDIGREED LEGHORNS BEST. Write for interesting Catalogue. Hanson's Leghorn Farm, Corvallis, Ore.

FARM LAND FOR SALE

OUR BACK-TO-LAND PLAN—We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land, deep, rich, tried soil; complete irrigation with cheap water, thorough drainage; rail, water and highway transportation. Write owners. SUTTER BASIN COMPANY, California Fruit Bldg., Sacramento, Calif.

NO COMMISSION. Sell your farm direct to buyer. We put you in touch with thousands of buyers through our branch office service. Owner only pays small listing fee for expenses. Booklets of farms for sale free. OWNERS' NATIONAL LISTING BUREAU, INC., 443-444 Roberts Bldg., Los Angeles, Calif.

POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, California.

CUTOVER and partly improved lands, near Deer Park, 23 mi. north of Spokane, rich, level land, well watered, free lumber, credit for clearing; 10 to 15 yrs. pay, 6 per cent. DEER PARK LUMBER COMPANY, 214 Hutton Bldg., Spokane, Wash.

FARMS WANTED

CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

TOBACCO FOR SALE

HOMESPUN TOBACCO: Chewing, 6 lbs. $1.75; 10, $3; smoking, 6 lbs., $1.25; 10, $2; pipe and recipe free; pay when received. CO-OPERATIVE FARMERS, Paducah, Ky.

PIGEONS

SWISS MONDAINE PIGEONS are purebreds and, as you know, purebreds pay and pay well. If you are interested in this new industry send 15c to American Pigeon Journal, Warrenton, Mo., for their May issue.

PIGEONS—Selected Silver King youngsters for sale. JAS. A. AVERY, Napa, Calif. R. R. 1, 704.

MISCELLANEOUS

FARMER WANTED to operate banana plant nursery in California. Demand increasing. Large profits. ROLLINS BANANA NURSERIES, Oldsmar, Florida.

Limas Succeed in Sutter County

THE Henderson bush, baby or sieva type lima, as it is variously called, is attracting considerable attention in Sutter County, due to high prices, outlook for decreased plantings in other parts of the State and good promise of adaptability to local conditions.

The market price during the last year has stood consistently between 10 and 11 cents and lately has risen to 12 cents. The demand is increasing, due to the evident superiority of the baby lima over most of our other beans.

There is a large outlet for making of canned soups, as well as for selling dry, and lately the baby limas have appeared as a feature on dining car and restaurant menus, attesting the favor with which they are being received by the consuming public.

The baby lima is more tolerant of heat than the large lima and was originally grown on the higher lands somewhat removed from the coast in Southern California, including the San Fernando and Carpinteria Valley, Perris and Beaumont districts. Some 12,000 acres usually are planted in the San Fernando Valley in years of normal water supply.

Ray Ingram grew about four acres of baby limas last year on the Ord ranch, on river bottom land. He planted the first time about June 1, but failed to get a good stand, therefore, replanted late in June. Vines grew large and prospects for a crop were very good, but hot weather during bloom reduced set. Beans failed to mature evenly, but finally were cut and cured in small cocks. The yield was 16 to 17 hundred-pound sacks per acre.

Ingram thinks it would be best to plant the baby limas on upland, where moisture could be better controlled. He thinks the soil should be kept well supplied with moisture so the vines will grow vigorously until the blooming period, after which water should be kept off and ground allowed to dry out.

The common experience with all planting here so far has been that if the beans are irrigated or kept moist by sub-irrigation after the middle of the summer they will keep on blooming and fail to mature evenly. In the drier areas of Southern California this trouble is not found and beans mature in from 90 to 100 days from planting.

Considerable damage has been done to the beans by the pod borer, the larvae working in the beans while they are yet growing. No satisfactory method of control has been developed, although late plantings are least subject to injury.

The following data will be useful for those who contemplate growing baby limas:

Soils—Grow on good loam upland soils or river bottom land which is not excessively moist. Not adapted to moist "subbed" land.

Method of planting—Rows 26 inches to 28 inches apart. Seeds about 3 inches apart in rows. About 50 pounds per acre. Plant 2 to 3 inches deep. A plate planter can be used, although the "pick-up" type is a little better.

Time of planting—May 15 to June 30. Best time is around June 1, although this has not been definitely settled. Late plantings are less injured by pod borer, but may not mature properly, particularly on river bottom land.

Irrigation—The soil should be kept moist until bloom has set, then let dry out in order to discourage further blooming.

Red spider—Less danger of injury than other varieties. None last year at Gridley.

Harvest—Beans can be cut while the plants are still green and piled in small cocks for curing. Baby limas thrash easily.

Yield—Several small local plantings last year yielded 15 to 17 sacks per acre—almost 100 pounds per sack. This might be considered an average to be expected with good soil preparation and care.

"The main thing," points out A. A. Jungerman, Stanislaus farm adviser, "is to keep a constant supply of moisture present. Any check in moisture will cause the beans to stop growing and return of moisture will cause them to set a new bunch of blooms, which makes two crops of beans. By bunching them all at once you will get a good set of bean pods and get a better yield and will mature all the same time.

"Growers in our county have gotten as high as forty sacks to the acre, an average would be from 15 to 20 sacks. Any soil that could grow Red Kidneys or Pinks can also grow Bush Limas in my opinion."—E. F. SERR, Assistant Farm Adviser, Sutter County.

Where Slaughter Plan Is Not Followed

By J. DUTTER

Southern Representative California Dairy Council

FOOT and mouth disease was introduced to South America via Argentine in a shipment of French shorthorn bulls more than 20 years ago. From the estancia where these cattle were taken, it spread on all sides at the rate of 30 miles a day.

Since this lamentable importation Argentine and Uruguay never have been free from the disease and today it is considered by far the greatest scourge of all bovine troubles in the Southern republics. Few owners of cattle in these countries escape without at least one visitation per annum and of late years it is not an uncommon occurrence for the same cattle to be infected with the disease to recover and have a second and even third attack during the same year, often in the same six months.

The calves of most cows which are attacked when nearing calving die; of cows and heifers in milk, about 25 per cent attacked remain with blind quarters, and some with quite useless udders. The losses through shrinkage of fat cattle are deplorable and must amount to many millions yearly.

Worst of all, in recent years there has appeared a new aftermath of this horrible disease. It is noticed that after repeated attacks, about 10 per cent of the herd after recovery do not regain their usual health. They wear their winter coats right through summer and on the first close, hot day many of these cattle die of a kind of heat apoplexy, always near the water troughs. If deep water is available such affected cattle will go right into it and remain in it up to their noses until sunset, when they will again seek the banks of the river.

The foregoing should answer those wise (?) people who have criticized the methods that are in use to stamp out this terrible disease in the United States of America. The only way to get rid of it is to destroy all trace of it wherever found. DO YOUR PART BY OBEYING RULES OF THE QUARANTINE.

Missouri Grades Eggs for Market

THE Missouri Farmers' Association began April 14 to buy eggs direct from farmers upon a graded basis. Before that time they had purchased eggs "as is," paying the same price for every case of eggs, regardless of whether the case contained extras, pullets, bakers or a combination of all grades.

This association has started a big program to educate the Missouri farmers to grade their eggs. This organization has over 400 buying exchanges and ten central plants assembling and grading for market. They also have over forty service men at work in the State instructing farmers how to pack and grade their eggs on the farm.

This association is working in conjunction with the Bureau of Economics of the Department of Agriculture and the State Marketing Bureau, who also have a force of field service men assisting the independent buyers in educating their customers in grading their eggs.

An educational campaign to encourage the farmer to grade his eggs and sell them on a graded basis is also being carried forward in Illinois, Kentucky, Indiana, Nebraska, Minnesota, South Dakota and in Ohio.

The Poultry Producers of Central California are about seven years ahead of the East and Middle West organizations in grading eggs, and hope to keep at least one year ahead of competitors. One of the ways to do so is by paying strict attention to grading and packing. While the grading of eggs has been a "sore thumb" with a few members, the wise thing to do is to grip more tightly the program of careful grading of eggs at the ranch.

MISCELLANEOUS

LAWNSHOWER SQUARE SPRAY SPRINKLERS distribute water uniformly over a large SQUARE AREA, reaching CORNERS of lawn or garden without flooding sidewalks and wasting water. Cast brass. Price $1.25 post paid. Money refunded if not satisfactory. LAWNSHOWER MFG. CO., 727 Tennessee St., Vallejo, Calif.

FRUIT JAR LABELS make your jars look neat and attractive, also make it easy to find just the jar you want. 400 assorted labels for only 60c postpaid. Check or money order. LESTER G. GARDE, 363 Frederick St., San Francisco, Calif.

MILK BOTTLE GATE POSTS

A Wisconsin dairy farm has gate posts made of maple logs shaped like huge milk bottles. They are painted cream color and each one bears on the top an electric light and the owner's initial.

Grasshoppers and Turkeys

TURKEYS proved of no value in controlling grasshoppers on the James Mills Orchard Corporation ranch at Maxwell last year and although they gave satisfactory profits on their own account, made no impression on the grasshoppers when the latter were abundant enough to be harmful. As a result none will be raised this season. —T. F.

CALVES FROM TUBERCULOUS COWS

That a valuable breeding animal which has contracted tuberculosis need not necessarily be slaughtered immediately is indicated by recent experiments at the Alaska Experiment Station, where 30 calves from infected cows were raised successfully and judged free from the disease.

Stop Awful Losses From Poultry Lic[e]

"Your remarkable [illegible] Mite Remedy has put a [illegible] poultry losses in this community," writes Rev. G. R. M[illegible] [illegible] Parsonage [illegible] Ohio. Just a few drops [illegible] remarkable liquid [illegible] fowls [illegible] No more Dusting [illegible] or Greasing [illegible] liquid [illegible] try house [illegible] that [illegible] [illegible] poultry and [illegible] poison [illegible]

Double your profits. This amazing [illegible] drink [illegible] water [illegible] all [illegible] and healthy [illegible] and grow [illegible] and [illegible] Nothing [illegible] [illegible]

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[illegible] Mosquito [illegible] and you [illegible] regular $ [illegible] $2.00 [illegible] average [illegible] of only one dollar which you pay the [illegible] when the regular $ [illegible] will be refunded on request [illegible]

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Pay postman $1.[illegible] plus postage [illegible]

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79 Fourth Avenue, New York

Know Your CALIFORNIA

Little Journeys Into Agricultural Districts

Editor's Note—Brief, intimate glimpses of rural communities in various parts of the state will be published from time to time under this heading. Subjects will be chosen at random without regard to rank in population or agricultural importance. Get acquainted with your California, its opportunities and delights, by accompanying ORCHARD and FARM representatives upon these informative "little journeys."

GUSTINE DISTRICT, MERCED COUNTY

"THE WEST SIDE" is known in the San Joaquin Valley as the strip of land stretching from Tracy on the north to below Dos Palos on the south. About one-half of this fertile land belt is irrigated at the present time either by company canals, private plants, or district irrigation systems. At present, it is planned to cover a large additional area of California's most fertile soil with water from the proposed San Joaquin Water Storage District, which will take in most of the present irrigation systems.

In the heart of this district lies the thriving little city of Gustine (Merced County), bordering the southerly line of Stanislaus County. Gustine has a population of about 1900 people. Dairying is the chief industry, bringing a monthly income of about a quarter million dollars. It is the California home of the Carnation Milk Products Company, which maintains here its largest and most modern plant for putting up "Carnation Milk."

It is also the home of Dairy Delivery Company, that is to say it is their country home," from which a goodly supply of their quality goods is shipped to San Francisco and other markets. Not the least of the local dairy plants is the Gustine Creamery, who put up the fine brand of "Challenge Butter" mostly marketed in Los Angeles.

Smith Cline & French, age-old drug firm of Philadelphia, have a subsidiary concern here called the California Milk Products Company, who manufacture from the milk sugar, used in the drug business, and numerous other by-products of casein and whey, used in the manufacture of ivory pyrolin, billiard balls, buttons, combs, etc.

However, diversity of source of income is good business, according to the minds of the leading citizens, and in the past few years there has been a heavy increase put into fruits, grapes, and berries. All kinds of vegetables do exceptionally well. Fig culture is apt to become an important factor. Grain farming and poultry raising are other important lines.

Gustine is immediately surrounded by 40,000 acres of good land, all under irrigation, with more irrigation and new cultivated lands assured within a period of two years. The town has exceptionally good schools, both grammar and high, three churches, two banks, and numerous merchandising stores. Paved streets in the main part of town are a credit to commerce.

Any correspondence addressed to the Chamber of Commerce will be cheerfully answered and such correspondence is invited.—E. J. MOOREHEAD, Secretary.

Poultry Is Increasing

ACCORDING to the United States Department of Economics, the number of chickens on farms this year is [illegible],000. This is 50,000,000 more than last year and 115,000,000 more than in [illegible], an increase of almost a third in [illegible] years.

[illegible] population increase from 1920 [illegible] was 6.3 per cent; the egg production increase in the same period [illegible] per cent. There is little, if [illegible] that export trade will absorb [illegible] of this increased production.

[illegible] are eating more eggs than we [illegible]. The per capita consumption [illegible] was 14.6 dozen in 1920, [illegible] in 1921, 16.9 dozen in 1922, [illegible] dozen in 1923, an increase of [illegible] in three years.

[illegible] the increased production [illegible] was a gain in the average [illegible] of 1923 over 1922, of 5.4 per [illegible] spring of 1924 however has [illegible] they are lower [illegible]

[illegible]

Official Test Discloses Winner

This Remarkable California Cow Establishes New World's Long Distance Record—Enormous Milk Tonnage

IMAGINE, if you can, 49,000 quarts of milk! This many quart bottles, if placed end to end, would extend for seven miles; 1000 quarts would weigh a ton—think of it, 49 TONS of milk!

This tremendous volume of milk represents the production, in three years of a California cow, Adirondac Wietske Dairymaid, owned by the Bridgeford Holstein Company of Patterson.

She is the only cow in the world to produce over 1000 pounds of butter fat per year for three consecutive years. Her total production for this period being 97,882.6 pounds milk and 3186.7 pounds fat. This would churn enough butter to supply 248 people for one year.

This production, with that of many other cows, has been determined by careful tests conducted by the University of California, College of Agriculture, in co-operation with the breeders. Up to the present time 13 Holstein cows in California have produced over 1000 pounds of butter fat in one year; at present only two other States approach this mark, which gives California one-sixth of all such records in the United States.

The making of these tests is a very interesting work and draws into it many young men interested in dairying who thus gain valuable experience. They are hired by the University, which sends them wherever their services are desired and charges the breeders for the work.

Each month one of them appears at the ranch where the cows are to be tested. For two days he supervises the milking of each cow under test; he observes the milker at work in order to be certain that nothing but the milk drawn from the cow goes into the bucket; he weighs each milking and takes a sample of it, which is locked in his sample box until tested for butterfat.

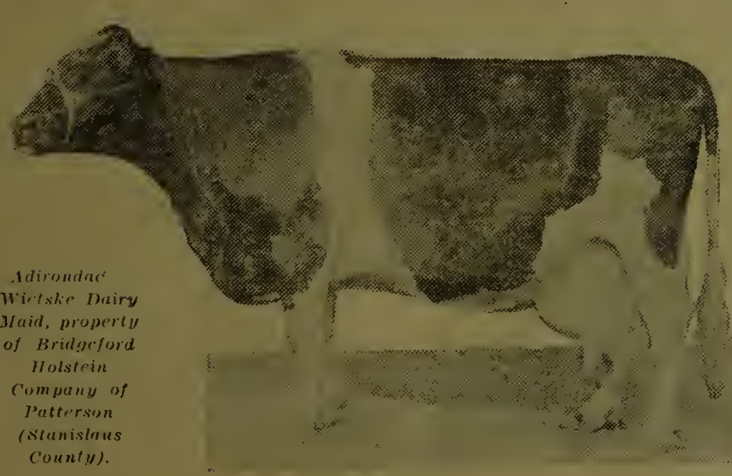
He reports the milk and butterfat production recorded by him to the college, which checks his data and sends it to the breed association with which the breeders' cattle are registered. The breeder reports to the association monthly the production of the cow and this, with the supervisor's report, is used to determine her production for the month.

The entire State is covered by the testers, who work long and irregular hours in all weather because of the interest they have in dairying.

How would you like to get to bed at 8:30, only to crawl out at 1 a. m. to spend an hour or two in a chilly barn, get to bed again about 3 a. m. and arise at 6 a. m. or perhaps as late as 7 a. m.? You wouldn't like it, but that is not an unusual schedule for those boys where cows are milked four times daily, every six hours.

One should consider also the man who milks and cares for such animals; every six hours he feeds and milks the cow and six or eight more; he studies her likes and dislikes, watches over her appetite and cares for her health. The milkers of some of these animals have cared for them for an entire year without being relieved for more than three or four milkings during this time.

The rate of pay alone is not sufficient to account for such interest and untiring effort. A real love for the work actuates the man who enters such an occupation and only this love for it makes these wonderful records possible.



Adirondac Wietske Dairy Maid, property of Bridgeford Holstein Company of Patterson (Stanislaus County).

Old World Methods in California

(Continued From Page Two)

another matter. It has been stated that trees so planted may be set two to three hundred to the acre; yet the amount of fruiting space per tree is far smaller than on trees grown under ordinary orchard conditions.

California already has extensive bearing orchards and thousands of acres still to come into bearing. There is no call for increased production through intensive and expensive methods under present conditions. The extra investment in fence posts, wire, etc. and the great amount of skilled labor required to grow trees under the espalier system can in no way be offset by the yields secured through closer planting. A high percentage of fruit so raised is of the best quality, but similar fruit can be produced in quantity at a cheaper price under good orchard conditions throughout many parts of the State.

The extra amount of skilled labor indicated is not the only limiting labor problem. The particular kind of skill required is not commonly found. The training of trees in this manner is a fine art in itself, it has been built up through centuries of practice and cannot be learned overnight. To maintain such a planting under commercial conditions would require the training of highly specialized workers, an overhead charge that would materially offset the cost of production.

While it is apparent that this method of culture cannot possibly be expected to succeed commercially under conditions favorable to fruit growing under [illegible] or orcharding system in California, yet in the gardening field—the one in which it has [illegible] in the Old World—it may prove [illegible] departure of practice [illegible]

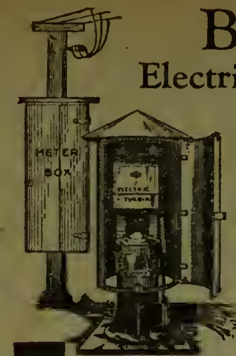
More and more attention is being paid to the home garden, particularly since garden plots are becoming more and more restricted in size. Even though there is an abundance of all kinds of fruit produced in the orchards of the State, many people prefer and enjoy raising their own table fruit. If many varieties are desired from one's own plot, several varieties must be grafted on to each standard tree or else some method of dwarfing trees resorted to that will permit a number to be grown in a small area.

Where an enthusiast has the desire and the patience to develop such trees, the Old World method may prove satisfying and give him many hours of enjoyment in an admittedly fascinating operation. The details of the methods and practices, the specialized limb and fruit bud grafting, the artistry of design, have all been treated fully in many texts. A rich and varied literature has been built up on this system through a long period of years. It is one of the interesting portions of horticultural writings. The observations of French authors have been particularly complete.

Some of the accompanying illustrations indicate some of the typical forms noted by the author in some of the French gardens and indicate the degree to which this practice has been developed abroad.

JOIN RABBIT ASSOCIATION

The Southern California Rabbit and Pet Stock Association meets at 8 o'clock the first Friday evening of every month at the public school building at Eighth street and Grand avenue. The meetings are public and anyone interested in rabbits or pet stock is invited to join the organization of which George Green is secretary.



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Please send me your new pump catalog with information on the Bean Electric Turbine.

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Body of dress fashioned from soft, sheer, genuine Tussah Silk—a most beautiful material. The wide, generous yoke is of elegant silk Spanish lace, the rage of the hour! A wide band of this same beauteous lace is also all around skirt near bottom. At waist is narrow self material girdle, with rich rosette of silk lace run through with silk ribbon drop in contrasting color—a clever touch. Newest wing sleeves. This bewitching gown drapes beautifully. Suitable for day or evening wear—it will be your "dress up" frock. A saving of half if ordered now.

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WHEN ANSWERING ADVERTISEMENTS PLEASE MENTION THIS MAGAZINE

Filbert Farming Profits, Pitfalls

By C. E. SCHUSTER
Oregon Agricultural College

IT'S not all down hill with nothing to stop us in growing filberts. The industry will have to put up a fight for itself. American grown filberts have to compete not only with huge importations, but with enormous production of other nuts.

Insects and diseases which will cut down production no doubt will be introduced—there is a snout weevil in Europe now so bad as to be called "the devil of the Aveline", the inferiority of foreign nuts can and will be improved by better handling, and a rise in the tariff looks like the only thing that will do us any good in that quarter.

Soil and cultural mistakes are the ones that trouble us most, however, and I predict that 50 per cent of the groves that are now being planted will in ten years be a total loss. At present we are fairly safe in telling the grower that if he follows instructions as to location, soil and pollinization he will come out whole.

The filbert business can be developed on a sound basis without booming, and it should be developed along slow, progressive lines. An attempt to urge indiscriminate planting will result only in loss. We must not allow it to get away from us.

Filbert consumption, which was 55,000,000 pounds in 1900, trebled in the next 10 years and doubled again by 1922, the respective totals being 165,000,000 and 3[illegible]4,000,000 pounds. In 1900 this country produced 18 per cent of the total consumed; in 1910, 39 per cent, and in 1922, 27 per cent.

In 1910 the domestic filbert acreage had increased 157 per cent over that of 1900, and in 1922, 401 per cent a ratio far out of proportion to the increase in population, but filbert acreage are still totals only a small fraction of the entire acreage in nuts, being only 1500 as compared with 88,000 in almonds, 93,000 in walnuts and 175,000 in pecans.

Forty-five million pounds of brazil nuts and 23,000,000 pounds of chestnuts were imported in 1922, and Turkey is beginning again to pour out unlimited quantities of filberts. Italy, Spain, Czecho-Slovakia all are producing heavily and can put their filberts into our market for 10 to 12 cents per pound.

The filbert will stay alive under the most adverse conditions. Eight-year-old trees in Oregon that are no larger than when they were set out are sufficient ground for saying that many orchards now being set never will pay a dollar. Heavy producing groves are the ones that will produce dividends and a low producing one will find no place in the industry.

Right there is another pitfall. Fifty or 60 pounds to the tree is not an uncommon crop, and 25 cents per pound for the 5000-pound crop from 100 trees to the acre is the optimistic calculation made by some propagandists. The English average is about 1000 pounds per acre.

Better Poultry Paid

REPLACING "scrub" poultry that had been unprofitable, a select flock of Leghorns that are kept scientifically by A. D. Sykes of Red Bluff, is standing in second place in the Tehama County Farm Bureau Poultry competition at time of writing.

On February 21, 1923, 100 baby chicks were purchased from an accredited hatchery. Of these 89 were raised, and 37 pullets brought to a laying age.

In July two or three began laying, with 23 eggs for the month. In August there were 211 eggs, in September 541 and in October 562.

The flock kept laying consistently until February, when they were entered in the county egg laying contest. That month the feed cost was $4.75, and egg production 600.

In March the cost was $4.48, and eggs 675, in April $4.62 and 646. The percentage of laying was 56.5 per cent, 61.3 per cent and 64.6 per cent.

This is considered a fine record for a farm flock, maintained as a sideline. Feeding is done for "long distance" and not forced production.

The old house was cleaned up as well as possible, thoroughly treated with crank case oil so as to destroy mites and remodeled at moderate cost so as to give clean, healthful quarters. The hens are kept penned, but are given plenty green feed.

Green Poultry Feed on Wire

IN SUPPLYING green feed to his dooryard flock of white leghorns, A. D. Sykes of Red Bluff uses a rather unusual but very satisfactory method.

A piece of woven wire is bent over like a sling or hammock, and suspended about 15 inches above the ground. The green food is laid on this and the hens have to reach up and pick it off. It gives them exercise and prevents waste, as they do not get a chance to trample it upon the ground.—TULARE FARMER.

Friendly Philosophy

(Continued From Page Four)

and resources. How, then, is this desirable condition to be attained?

IMPROVING THE FARMER'S POSITION—Leading agricultural economists now agree quite generally upon a platform which is expected to accomplish the objects outlined above. This involves (1) Volume of production per unit of area, (2) economy of production per unit of area; (3) quality of products marketed; (4) efficiency in marketing.

In other words, the farmer who prospers most and who has the most contented family life is likely to be the one who succeeds not only in securing a heavy yield per acre, but also in producing high quality at lowest possible cost, and marketing through a cooperative organization or in some other efficient manner.

A high order of business ability is required to succeed in farming as in any other line. No producer is likely to achieve all of these four points without a lot of study and hard work.

That the formula is a practical one, however, is shown by analyzing the reasons behind the success of many farmers who have made good. In almost every case their achievements will be found to have resulted from a combination of these four major factors.

Napa Kills Gophers

DURING the past 10 years a [illegible] gopher control [illegible] has been conducted in Napa [illegible]. Field demonstration meetings [illegible] been arranged by the farm [illegible] in co-operation with the several [illegible] Bureau centers, where there was [illegible] average attendance of 200 [illegible] each meeting who received first [illegible] information from experts on this [illegible] portant subject.

It is conservatively estimated that Napa County loses each year by gophers 1000 trees, which are worth $[illegible]00. This loss can be avoided [illegible] using control measures at the pr[illegible] time.

The gopher is an active little [illegible] ture. He feeds entirely on the [illegible] and bark of vegetables and trees [illegible] has no respect for the size of the [illegible] destroying a one-year-old tree as [illegible] ily as one 25 years of age.

One gopher made an attack upon [illegible] California [illegible] oak 12 inches in diameter and cut it half completely. The specimen was sent to W. C. [illegible] State superintendent of rodent control who placed the stump in the [illegible]

This is a sample of the work of the destructive gopher.

exhibit of what destructive work [illegible] dents can do.

The use of poisoned bait in [illegible] is most effective. The baits we [illegible] mostly consist of carrots, parsnips [illegible] prunes. The poison is the one [illegible] mended by the Government and [illegible] by several California firms. [illegible] tributed in Napa County by feed dealers. By this method using a [illegible] probe in the [illegible] and a [illegible] the [illegible] 40 to [illegible] acres can [illegible] tively be poisoned in one day by [illegible] man.

In alfalfa fields also this [illegible] method is effective although [illegible] we use the drowning-out method [illegible] irrigation. When a tree has [illegible] girdled, as the accompanying illustration shows, it can be bridge-grafted if found in time. This [illegible] shows very plainly the ch[illegible] tree growth, for the callus is all at the top and none at the bottom, showing very plainly which direction sap travels.

It pays well to use the poison method, accompanied by traps, in fighting gophers. There are very few farmers in Napa County today who are not informed with regard to the [illegible] of this destructive rodent.—H. J. [illegible], Farm Advisor Napa County.

Bouquets or 'Brickbats'

to Invitation to Speak Frankly

WHAT can we do to improve ORCHARD and FARM [illegible] it more helpful and [illegible] What, in your opinion, are the [illegible] features? What fault, if any, [illegible] find with it?

We want [illegible] comment [illegible] or suggestions of our readers [illegible] strings to this and all letters [illegible] dential. [illegible] expressions [illegible] whether the form [illegible] quets or brickbats [illegible] able. Particularly do we [illegible] ceive [illegible] will and [illegible] of greater [illegible] If you [illegible] your [illegible] editor to [illegible]

A SALE

of Genuine Hand Beaded TUSSAH SILK Dresses $3.98

BEAUTIFULLY HAND BEADED

Yes, we mean it, the price is only $3.98! Undoubtedly the biggest bargain sensation in years! A bewitchingly beautiful new style genuine Tussah Silk Dress, richly beaded and elegantly finished in every way. Most amazing offer ever made—don't miss it! Be quick! They will go fast!

Send No Money!

Richly made of fine quality genuine Tussah silk, soft and shimmering—an ideal material. A striking feature is the elaborate beading—pretty bugle beads in rich color tones set in a most tasteful and elegant design. Self material narrow sash. Fashionable kimono length sleeves with slashed cuffs. Round neck; tailoring throughout is perfect, you will be delighted with the workmanship. The style is one-piece, becoming to all ages and figures.

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HEALD'S AUTOMOBILE SCHOOL, 1103 Sutter St., San Francisco, Calif.

To Keep Boys on Farm—Give Them the Land!

That's Forester's Plan

THIS Imperial Valley rancher solved the problem of keeping his large family about him by dividing up his valuable ranch property among his sons. Now there are six dairy herds bringing in weekly cream checks, and several families are gaining their livelihood on the same areea which supported one in the days of large-scale exploitation.

WHEN "Whispering Ed" Forrester, widely known Imperial Valley pioneer, decided to take a well earned rest, he made a present of forty acres of land to each of his sons, six of whom now make their home on the big ranch near [illegible]tro. This popular farmer earned [illegible] nickname by reason of his mighty, [illegible]ing bass voice. He has succeeded [illegible]ping his large family about him [illegible] many others have broken up and [illegible] scattered. This is attributed [illegible] the fact that all have had a share [illegible] development of the ranch home.

[illegible]orrester has seen the land of Bar[illegible] Worth change from arid desert [illegible] one of the world's garden spots, [illegible] has had an active part for more [illegible] twenty years in the irrigation era [illegible]rch has brought about this trans[illegible]ation.

The ranch, now comprising more [illegible]n 450 acres, is in water district No. [illegible] was one of the first of the big [illegible] to be developed.

[illegible]ently the entire acreage, with [illegible] of a small part now [illegible] is rentable [illegible] in al[illegible] which is used as pasture for [illegible] in summer and in addition [illegible] five to eight cuttings of hay [illegible] the summer months.

[illegible] about 200 dairy cows [illegible] most of the year having [illegible] in twenty-six-fifty head. The [illegible] are low-bred [illegible] be[illegible] for the use of [illegible] dairy farmers. [illegible] of the cows have been owned [illegible] the ranch of [illegible] Forrester.

[illegible] Forrester [illegible] the [illegible] to dairy farmers in other districts a very "frontier-like" manner. That is to say, there are no fancy buildings, and no effort has been made to improve with costly equipment. Most of the milking is done without even a shed.

On that part of the ranch now owned by Ed Junior, a grove of eucalyptus trees and a corral serve as the "milking barn," summer and winter.

"No, I guess that couldn't be done any place but in Imperial Valley," agreed the young farmer, "but when we can get along without the big overhead expense carried by other dairymen why not take advantage of the situation and thus increase our net profit?"

Formerly tractors were used on the Forrester place but now that so much of the land is in alfalfa the boys depend upon horses and mules for all the work including plowing, which [illegible]. Owing to infestation with Bermuda grass [illegible] difficulty which is [illegible] by [illegible] of [illegible] by [illegible] every four to six years if a good stand is to be maintained.

It is possible, however, to kill the Bermuda simply by cultivation, according to the Forrester boys, who show as evidence of this statement a field recently planted to vegetables which was almost a solid mass of Bermuda last year. The pest was eliminated by plowing, followed by thorough disking and exposure to the hot summer sun. After a year or two of vegetable growing, this land can be safely replanted to alfalfa.

The tenants pay a cash rental of from $25 to $35 an acre for the vegetable land, raising lettuce, tomatoes, melons and squashes. These are planted early in the winter and protected by means of paper covers. For the tomatoes, miniature tents, made of newspapers and supported by rushes or corn stalks, are used. Oiled paper covers on wire frames, held in place by the soil, protect the young melon vines. These shields are removed as soon as danger of frost is over.

BIG SCALE OPERATIONS

An important by-product of the ranch is honey, produced by more than 100 stands of bees. A grapefruit orchard has proved very profitable.

Some corn is grown for silage, and grain for feed is produced. Formerly the ranch was devoted largely to hogs and beef cattle, and larger quantities of barley and milo-maize were raised.

In the "old days," as time is measured in Imperial Valley (where everything is comparatively new), this ranch was famous for the quantity of its products, every operation being conducted on a big scale, albeit somewhat crudely. Several hundred head of beef cattle and hogs were maintained.

Perhaps it was this very system, whereby expense was reduced to the minimum, which enabled the owner to accumulate a comfortable fortune while rearing his big family. Imperial Valley farmers have proved it is possible to get ahead in a land so favored by Nature without the "frills" sometimes associated with modern agriculture.

The owner has always been a lover of animals, but he has kept them for utility rather than show. A description of the ranch would not be complete without mention of the 13 year-old stallion, "Sam," whose feats of strength have made him famous.

Sam hasn't any pedigree, but shows some good Percheron blood; his colts bear out this statement, and, in fact, he is a better individual and has a better head than many blue-bloods we have seen. However, as a worker he is a wonder, and, according to his owners, seems to transmit this trait to his offspring.

Some horsemen keep their stallions penned up in a stable or corral, but Sam has earned his keep by hard labor. Gentle and obedient, he works willingly with from one to seven other animals at all kinds of field jobs. But it is in his individual feats of pulling that he outshines other horses.

One time he is said to have dragged a stalled motor truck out of a mudhole when four other good horses together had failed to move it. Frequently he is called upon to handle a heavy plow alone, and during the lettuce harvest season is in demand for moving motor trucks that can't get out of the fields under their own power.

He has put his shoulders to so many heavy loads that his hind legs show the strain, the ankles being almost deformed. His greatest feat, according to Ed Junior, was in moving a seven-ton load at the age of 12. It is easy for the visitor to see why the Forresters think a lot of "Sam."—ALBERT J. MASON.

OILED PAPER APPLE COVERS

Approximately 12,000,000 boxes of apples that went into storage last fall were wrapped in oiled paper wrappers for the prevention of loss from apple scald, and, according to results obtained by the United States Department of Agriculture, this part of the apple crop should come through the winter in excellent condition and practically free from this most troublesome disease.

Early vegetables are protected by Imperial Valley growers with oiled paper covers. Part of the Forester ranch is leased to truck gardeners. The average rental price in the Valley is about $30 an acre.

Above—Not much for style, but a wonderful puller is "Sam," posing with Ed Forester, Jr. He is said to have moved a load which "stumped" four good horses together! Whenever a truck is stalled in the field, there is an S O S call for this willing equine worker. Left—Scene in the Forester grapefruit grove.

Above—Not a wigwam, but a protector for early tomatoes. Below—This squash vine was photographed late in January. It grew without covering.

Agricultural Cameragrams

The owner of this Ventura County poultry plant valued his peace of mind sufficiently to cover the runs entirely with netting, thus foiling hawks and other marauders. Photograph by Secretary Robertson of the Oxnard Chamber of Commerce, who is rather an artist with the camera. This poultry farm represents an investment of $12,000 and has accomodations for 2000 laying hens.

Popularizing Goat Cheese

This purebred Toggenburg sire, Don Bruno, is owned by J. E. French of the North Counties Milk Goat Association, Ettersburg (Humboldt County). "Eurisco" goat cheese, marketed by the association, is shown at the upper left, curing in a cellar, where it is ripened before being shipped.

The association is co-operative and owns a well-equipped factory at Ettersburg with an experienced cheese maker in charge. More than 10,000 pounds of cheese was made the first season and 20,000 pounds in 1923.

After much experimentation, in order to determine the kind of cheese best adapted to local market conditions, it was decided to produce a Swiss type, pure white and of attractive flavor.

Girl Farmers

As proof that feminine enthusiasm for agriculture did not end with the war, note the interest displayed by these attractive farmerettes at the Inglewood High School, near Los Angeles. Professor Lloyde of this institution has done great work in giving his boy and girl students practical instruction in the rudiments of agriculture. The Smith-Hughes act is responsible for this type of instruction, now given in more than 100 California high schools and junior colleges.

Weighing milk and recording production in a Marin County dairy barn. Farm Adviser Boissevain has had much to do with improvement of dairy methods in his district, and a great increase in efficiency has been noted.

Good Morning! How Do You Do?

This Chinchilla rabbit and family consented to pose on behalf of their owners, The Golden West Fur Farms, near Arcadia (Los Angeles County). This concern is said to be the only importer of this breed in California, claiming there is a good demand for the pelts on the part of fur manufacturers. M. W. Meek, one of the partners, is an experienced furrier who is said to have perfected a process of making "seal" from rabbit skins, to be known as "Pacific Seal." Other breeds, including Champagne d'Argent, Brown Havana, American Blue and White Giant, will be maintained at the new fur farm, according to Leo R. Neuer, joint owner of the unique establishment.

This is the Avian Pathology Laboratory of the University of California, maintained at Petaluma, "The World's Egg Basket." Here research work is carried on, dead and ailing birds examined, and methods of treatment or prevention of poultry diseases suggested.

ORCHARD and FARM

A Gigantic Farm Enterprise

Read "Deep Well Development of 250,000 Acres," Page 2 — the remarkable story of a diversified California ranch, so large that an area of 10 square miles is devoted to grain alone.

JUNE 22, 1924

THE FLOWERS ARE PRETTY, BUT THE LITTLE LADY'S VEGETABLE GARDEN HAS GONE TO SEED!

Deep Well Development of 250,000 Rich Acres

Farming on Enormous Scale

PICTURE a diversified ranch so large that more than ten square miles is devoted to grain growing—not to mention over 8,000 acres of fruit! The hog department, which, after all, is a sideline, turns off about 3600 market animals a year, two carloads each month. Yes, we must think in big figures when sojourning in the "County of the Kings."—*Editor.*

By O. H. BARNHILL

HISTORY is repeating itself in the development of a quarter million acres of rich agricultural land in Kings and Fresno Counties. Located in the geographical center of the State, immediately adjacent to a large body of heavy producing fruit and farm land around Hanford, this vast tract until very recently has lain dormant, practically untouched. Bordered on the east by the Kings River, on the west by the Coast Range, it stretches south from Mendota to the Tulare Lake Basin.

Here the lone sheep herder was monarch of all he surveyed. Wool and mutton still are the only products of most of the land, where big bands of "woollies" pick up a precarious livelihood from the dry, sage-brush covered soil. Years ago a few hopeful homesteaders ventured into this desert and attempted to grow grain by dry farming methods. A year of unusual rainfall resulted in good crops, but little could be raised in an ordinary season; therefore the land was abandoned to coyotes and jackrabbits.

No running water was available for irrigation, and wells bored hundreds of feet deep yielded liquid too heavily charged with injurious salts to be useful for soil wetting. There seemed no hope for the land, the natural rainfall being entirely inadequate and the growing of profitable crops without water an impossibility.

The average individual, therefore, dismissed the district as unworthy of further consideration from an agricultural standpoint—just as the Imperial Valley and other great arid areas at one time were condemned as worthless deserts, impossible of development.

FIND UNDERGROUND WATER

But eight years ago a company of engineers, after a careful survey of the land, decided it was underlaid at great depth with an abundant supply of pure, fresh water, which, if provided with an outlet, would rise sufficiently high to make pumping practical. Accordingly, a 2500-foot test well was sunk near Henrietta Station, 20 miles west of Hanford, on the railroad which runs from Hanford to Coalinga not far from the point where it is crossed by the paved Sierra-to-the Sea Highway.

Results exceeded expectations, to use a time-worn phrase. The subsoil was found to consist of alternate strata of sand and clay, all of the former being water bearing. Down to a depth of 900 feet the water is heavily charged with minerals, being unfit for either irrigation or domestic use. Below that depth, however, it is excellent, very much like that obtained from wells on the east side of the San Joaquin Valley, which is believed to originate in the Sierra Nevada Mountains. It was found practical to shut off the surface water and draw from this subterranean supply, which rises to within 40 to 60 feet of the surface.

Realizing great development possibilities, a company of Boston capitalists organized the Boston Land Company, purchased 43,000 acres of land in the vicinity of the test well and began development on a scale unprecedented in the history of California. Since this concern has no land for sale, little publicity has been given to its great work, which is deserving of the highest commendation and imitation.

EXTENSIVE FRUIT PLANTINGS

F. Steigmeyer, an able Utah irrigationist, was given charge of the development work, which is a model of its kind. The thoroughness of his operations is indicated by his offer of a box of cigars to anyone who will find a single blade of Johnson or Bermuda grass or other noxious weed on their 67 square miles of land. Occasionally he has to buy the smokes, but considers the money thus spent a good investment.

In the past four years a total of 29,000 acres has been brought under cultivation by this company. The acreage set to fruit is divided as follows: Peaches, 2400; figs, 2140; apricots, 600; olives, 320; pears, 160; almonds, 170; wine grapes, 640; Malagas, 440, Thompson, 600; Muscat, 1100.

There are 6500 acres in grain—more than 10 square miles; 2400 acres in cotton and large plantings of corn, alfalfa and vegetables.

Homer Stokes, formerly of the division of animal husbandry, University of California, has charge of the hog department, from which two car loads of fat porkers are shipped each month —3600 per year. The number of brooding sows averages 275..

In the poultry department there are 1400 White Leghorn hens, 250 tamed wild ducks and many other fowls. One hundred and fifty well-bred mules and many Percheron mares, together with a fleet of tractors, furnish the motive power for cultivating fields and marketing crops.

PRODUCTIVE DEEP WELLS

Electric power pumps the water from 54 deep wells and operates feed mills and grain elevators, all of which are owned and operated by the company. Although each of these wells is pumped continuously, night and day, yielding 20 to 25 barrels per minute, and 13 of the first ones put down have been in operation six years, the flow has not decreased, but in some wells is better than ever.

The wells are 1200 to 1800 feet deep and cost, equipped, about $15,000 each. One well will irrigate a section of land devoted to mixed farming, while two are needed to water this area farmed intensively.

There are no reservoirs or canals, all the water being conducted through underground concrete pipes, of which there are nearly 200 miles in use. A crew of workmen is kept busy putting down new wells and equipping them with pumps, to irrigate the thousands of acres which each year are added to the cultivated area.

Enormous yields of grain, hay, fruits and vegetables are obtained, while cotton makes a bale or more to the acre. Most of the fruit trees and vines are too young to bear full crops, but the first plantings have yielded enough to indicate heavy production of first-class fruit.

SMALL FARMS COMING

While nothing definite is known regarding the Boston Land Company's future plans, Steigmeyer makes these significant statements:

"All this land some day must be cut up into small ranches. We shall not sell any land, however, until we have developed it to the point where the buyer takes no chances—he can see just what it will produce."

Land adjoining this company's holdings is held at $25 to $50 per acre. There is more or less alkali for a few miles west of Kings River, but this does not appear to prevent good crops being raised. Probably this is because the subsoil is dry to a considerable depth, affording good drainage, while the surface slopes east to Kings River and Tulare Lake bed.

Two other notable development projects are proving the great agricultural value of this vast, lonely land. One of them is at Murray, 10 miles south of the Boston Ranch. The pioneer here was David Murray, Hanford business man, who 10 years ago set out a small olive orchard near the village which now bears his name. L. G. Nieson, also of Hanford, planted another olive grove.

OLIVES PAYING CROP

These plantings attracted the attention of C. M. Gepford, well-known olive producer and packer of San Diego, who seven years ago set out 140 acres of trees for the Gifford Escalano Olive Company. From this grove last year there was gathered 500 tons of choice fruit, much of which sold for $250 a ton.

Three years ago the Kings County Packing Company planted near Murray 1060 acres of fruit, as follows:

Peaches, 680 acres; Thompson grapes, 130; apricots, 110; pears, figs, cherries and plums, each 40 acres. The estimated production of fruit from these plantings is 3000 tons.

Deep well pump irrigation is practiced. The water is so warm—72 degrees—that it was run in the ditches during the apricot blossoming season to prevent frost injury.

The "Kingco" people this year are planting a large acreage to melons, tomatoes, cabbages and other vegetables. Cantaloupes and peas are being tried out. Turlock farmers are experimenting with melons, the extra earliness of the season promising princely profits.

A dozen miles north of the Boston Ranch the Kings County Development Company is beginning the improvement of 34,000 acres *(Continued on Page 9)*

This vineyard view on the Boston Land Company's ranch shows the abundance of water made available by deep water pumping. Several thousand acres are in fruit.

A lamb shipping scene near Hanford, center of a great livestock industry as well as new development projects.

Some of the best young olive orchards in the State are located at Murray, near the south end of this quarter-million-acre tract of virgin soil. Early vegetables thrive, as well as cotton, fruit and alfalfa.

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY

JUNE 22, 1924

Chamber Commerce, Farm Bureau Co-operate

Crisis at Hand in Relations Between City and Country—What Some California Communities Are Doing—A Challenge and Its Answer

By THE EDITOR

JOHN FARMER met George Cityman one Saturday afternoon on a busy corner of a thriving California valley town. They stopped to discuss the weather, baseball, politics, crops, so-called prohibition and other mutually interesting subjects. In fact, to the Bystander, it seemed as though these two expressed equally intelligent and decided opinions upon every live topic of the day.

Ignoring the superstition concerning three cigars and one match, the two friends invited the Bystander—perhaps, because he is known as a "good listener" to join them. And just as the latter anticipated, no sooner had the smoke clouds begun to gather, than the conversation turned to the one big topic which is absorbing the attention of agricultural leaders and business men throughout the length and breadth of California.

"George," said John Farmer, "Your Chamber of Commerce is a wonderful organization and is doing a lot for this community, but you are getting 'in dutch' with the Farm Bureau. Now, I belong to the Chamber, as you know, and I believe you're a member of the Farm Bureau, so we can discuss this thing frankly.

"We don't like the way the Chamber has drafted our leadership and taken over some of the functions which we feel rightfully belong to us. I have hesitated to inject this feeling into Chamber meetings I have attended, because I realize the majority of your members imagine they are really helping us farmers and might feel deeply hurt if any one suggested otherwise."

Cityman gazed at his friend thoughtfully a moment, opened his mouth as though to reply, then puffed reflectively instead. "H'mm," was all he finally said. John took advantage of the silence to continue.

"Now it seems to me, George, we are on the wrong track. It's all right for our membership to overlap to some extent and there's plenty of opportunity for co-operation, but your agricultural committee very often jumps at conclusions concerning subjects they know nothing about.

"In their zeal to perform some service for their farmer members, they are always starting some campaign or movement which, if the Farm Bureau were consulted, would be handled more effectively in some other way or might better be left entirely to the farm organization.

JOHN DEMANDS EXPLANATION

"Now, confess, you pavement-pounding plutocrat"—and he shook his companion playfully by the shoulder—"in your zeal to promote the welfare of the community as a whole, don't you sometimes imagine we poor, benighted ruralites are unable to think for ourselves?"

Cityman grinned and turned to the Bystander. "Isn't that just like a farmer?" he demanded, "Always hollering for help and then complaining when he gets it? But seriously, John, I've realized there was a growing feeling of dissatisfaction, and that something would have to be done about it. I've given it some thought, too, and this is my suggestion:

"It seems to me all right to let the membership proposition take care of itself. If you Farm Bureau fiends can sandbag some of our merchants into joining your busy—and, I might add, Bolshevistic—organization——"

"We'll let that pass—for the present," interrupted John Farmer.

"If you can get 'em, well and good," continued Cityman. "I have no doubt you need the money and will use it to good advantage. On the other hand, if our smooth-tongued orators can wheedle you and your rustic brethren into forking over a few simoleons for Chamber of Commerce memberships, well and good too. I'll guarantee we'll earn all we get, anyway.

"But when it comes to overlapping activities, that's a different matter. I agree with you, the farmers know best what they want and need and should direct all enterprises directly concerning agriculture. Also, they should be consulted in all Chamber of Commerce activities affecting agriculture."

"Good boy!" cried John Farmer, delightedly. "Your broadmindedness is re[illegible]hing, to say the least—more so than could be expected from one whose vision [illegible]stricted by the four walls of a bank and who thinks an irrigation check is [illegible]thing used to pay water bills.

"And I'll admit," continued John, "that we farmers use your town even more [illegible] you townfolks use our vast open spaces. We hold our big gatherings in [illegible]rk, use your facilities for our comfort and that of our families, park our [illegible]dy flivvers right beside your shiny Cadillacs——"

"[illegible] on the other foot, there," interrupted Cityman again, calling the [illegible]r's attention to John Farmer's big roadster parked a few yards away. "[illegible] even afford a flivver."

"[illegible] anyway," countered John, "you'll blossom out in a big twin eight one [illegible], when I'm wondering how to pay the repair bill on my old boat."

"[illegible] you were discussing the farmer's use of city facilities," suggested the [illegible]r who was anxious to hear the outcome of the argument.

"[illegible] continued Farmer, "I will admit we get almost as much benefit from [illegible]ments, the bathing plunge, the fine hotel, the stores, the [illegible] Union schools as do the folks who live in town. Therefore, [illegible] the Chamber of Commerce and its worthy activities.

"[illegible] proud of the growth of this little city and always speak of it [illegible] I, for one, don't regret my investment in the dif[illegible] by the Chamber."

"[illegible] in his turn. "I see your frequent association with [illegible]red by urban life has tended to enlarge your vision and open your eyes to some great, fundamental truths. But, now that we've settled the membership question to our mutual satisfaction, how about the friction that we know exists and is gaining momentum every day?"

"It can be avoided without impairing the efficiency of either organization," John insisted. "There ought to be some way to tie up the two associations and take advantage of the co-operation that is possible between them. How about each appointing representatives to consult with the representatives of the other?"

"Now you have it," Cityman agreed enthusiastically. "The Farm Bureau should be represented on the directorate of the Chamber of Commerce or appoint committeemen to sit in with the Chamber's committees, and vise versa. I believe that would solve the problem. Each group, of course, would look out primarily for its own interests, but in case of disagreement or deadlock, a compromise could always be reached."

"And this plan," John Farmer pointed out, "would enable them to work together on the many broader questions that neither could handle alone."

The Bystander realized that he had been present at the birth of a sound plan—one which since has been adopted with outstanding success by several California counties, north and south. Of Orange County (where an almost ideal relationship exists) and others, we shall have more to say in future issues. In a recent article, we told of some of the achievements at Petaluma.

And in our investigation of this important subject, we have collected much interesting information about the plans and methods in various districts, all of which we feel will be most helpful to our thousands of readers who are thinking along the lines of co-operation.

In future articles we shall report the methods and accomplishments of some of the Chambers of Commerce which have done most for and with the neighboring farmers. And we shall tell also, how Farm Bureau organizations have met the townspeople more than half way in doing great work for their respective communities.

SUBSCRIBER AIRS VIEWS

We shall close this article, however, with a letter received from a subscriber, whose name we withhold by request, which sounds the keynote of the dissatisfaction that has crept into Farm Bureau circles. It represents, we regret to say, a feeling which has become very acute in certain districts—a situation which must be corrected if the Farm Bureau is to survive and fulfill its destiny:

Mr. J. C. Knollin,
Editor ORCHARD and FARM,
1111 South Broadway,
Los Angeles, California.

Dear Sir:

I was very much interested in an article which appeared in a recent number of ORCHARD and FARM in which the very happy relationship existing between the Petaluma Chamber of Commerce and the Sonoma County Farm Bureau was discussed. The impression gained from this article was certainly to the effect that most harmonious relations exist between the two organizations, and co-operation between them has been productive of very satisfactory results in promoting the poultry industry of Sonoma County. I have been especially interested in this article because it deals with a problem which looms large in Farm Bureau work in most parts of California at the present time, a problem which has been apparently very happily and effectively worked out in the Petaluma section. It is my observation, however, based on some years of active experience in Farm Bureau work, that as yet this problem has not been worked out to mutual satisfaction, excepting possibly in a very few cases, of which the instance above referred to is one.

As an ardent supporter, and one who has done considerable Farm Bureau work, I have watched with interest and in all too many cases apprehension, the usual situation which develops when Chamber of Commerce reorganization occurs, especially of that type which has been so prominent since the World War.

I have seen dozens of cases, all of which have gone about the same way. One or more high-pressure Chamber of Commerce organizers have come into the community, and have "sold the idea" to the business men of the community, of a strong and active Chamber of Commerce, to boost business and property values, and to do everything possible for the upbuilding of the community. The result is the organization of a new Chamber of Commerce, or the reorganization of the old and nearly defunct one, with a membership campaign put on by high-pressure solicitors of the real estate type, and with high membership dues ranging from $10 to $25 per year.

In a number of cases I have had under observation, the fees exacted by the organizers have been 25 per cent of the first year's membership dues and 15 per cent of the second year's dues, and the members are signed up for a three-year period on a $25 per annum basis. It is perfectly obvious that in the hands of a skilled organizer it is highly profitable to form Chambers of Commerce after this plan!

The Chamber of Commerce is then organized with a much larger membership than it had ever had before and starts off with a lot of enthusiasm. Pretty soon it becomes apparent to the Board of Directors and to the members, the majority of whom are farmers who joined because they could not dodge the solicitor, that the organization must do something for its membership—something which may in part return the high membership dues. The weekly luncheons are on a self-sustaining basis; the usual sociables do not make much of a return. Something must be done to maintain the (Continued on Page 6)

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FRIENDLY PHILOSOPHY
By THE EDITOR

THE HIGH SCHOOL "AG" COURSE—Is agricultural instruction in the high schools worth while? Does it fill a definite need? Shall it be continued?

Many are asking these questions, but any one who makes a careful investigation of the work can give but one answer to all of them—"Yes!"

The history of agricultural instruction under the Smith-Hughes Act in California is comparatively brief; yet wonderful progress has been made. Many difficulties have been overcome and those in charge of the work constantly solve new problems.

One of these is the question of securing and keeping capable teachers. The requirements for this work are high and the remuneration, in proportion to the responsibilities, very low. The State officials, therefore, deserve special credit for their achievement in having built up the splendid organization we now have in this State.

WHAT OF THE FAILURES?—We cannot, of course, overlook the fact that agricultural instruction has not been successful in a few schools. In such cases, in the belief of State Superviser Werner, the fault has been not with the system but with the instructors, and when the "right man for the right place" is found, all is serene!

Just at present the financial problem looms large, but we believe that when the results are weighed in the balance, necessary State funds will be forthcoming to carry on the work indefinitely.

THE MOST IMPORTANT RESULT—What results, then, may be anticipated from continuation and enlargement of this branch of public instruction?

Probably the most important will be greater attendance at the College of Agriculture and University farm. Many a boy who otherwise would not have entered the University, gets from his high school work the vision of better things which leads him on into higher institutions of learning. This fact alone should justify continuation of the work.

But there is the additional advantage of instilling in the minds of hundreds of boys who cannot continue their education some of the principles of better farming and citizenship which will make them more successful in their chosen vocation.

PUTTING THEORY INTO PRACTICE—That the majority of the boys who take agriculture do apply the lessons they have learned is indicated by reports of graduates of the San Juan High School, Fair Oaks (Sacramento County), a typical example:

"Ben Emerson and his brother, Ralph, have rented their father's ranch at Antelope. Last year they raised 1800 turkeys."

"Homer Coffing is farming his father's place near Fair Oaks. We understand Homer soon may enter the University Farm."

"Victor Imel has purchased a ranch in Del Paso and is working in the cannery at Sacramento."

"Elmer Dickson is raising peaches in Carmichael."

"Merle Neuerberg is raising peaches and tomatoes in addition to working in the Roseville shops."

Many others are listed who are working on farms, renting farms, or attending college to continue their education.

In future issues, ORCHARD and FARM will have more to say concerning high school agricultural instruction and will report, as in the past, interesting activities of the various institutions.

WHAT'S NEW? Keeping Abreast of Agricultural Progress

Shafter Sells Inspected Spuds

SHAFTER (Kern County) is shipping nearly 1000 cars of potatoes, all of which are going out under United States grades, federally inspected. It is believed this will help materially in obtaining attractive prices. A large percentage of the crop is being shipped to Middle Western and Southern States, instead of to the Puget Sound region.

College Curing Hay Fever

THE Oregon Agricultural College has equipped a laboratory for the preparation of pollen extracts, which are used in the treatment of hay fever. The pollens are being collected by the botany and plant pathology departments and the laboratory work performed by experts in chemistry, biology and pharmacy. The only charge for this service is actual cost of materials.

Date Authority to Lecture

DR. WALTER T. SWINGLE of the United States Department of Agriculture, who is recognized as America's leading date authority, will deliver ten lectures on this subject, with accompanying laboratory work, at the forthcoming summer session courses on Subtropical Horticulture. Dr. Swingle's lectures are scheduled for July 28-August 8. Anyone can arrange to attend these lectures, or all the sessions, by writing to the College of Agriculture, Berkeley.

New Olive Brand—"Sun Ripe"

"SUN RIPE" is the new trade name recently chosen by the California Olive Growers for their products. Although this association heretofore has sold to canners, it plans to erect its own packing plants. The first of these is to be constructed at Strathmore (Tulare County).

The following sized packages will be used: Five-ounce, tall pint, tall quart and gallon. Eight sizes of fruit will be packed, the exact size contained in each package being shown by pictured olives on the label.

Rice Growers Make Money

ALTHOUGH California rice growers have encountered serious difficulties, they have made a larger margin of profit the past three years than any other grain growers, according to Ralph Merritt, former president of the California Rice Growers' Association. Ninety per cent of the 1923 crop was sold three months before harvest, as was true of the two preceding crops.

"The success of the rice industry," declares Merritt, "depends upon marketing at least 75 per cent of the crop by orderly methods, guided and planned through harmonious and intelligent co-operative effort."

Savages Reforesting Africa

AMERICAN forest conservationists are much interested in the reforestation work being done by the Kikuyu tribe of negroes in Kenya Colony, British East Africa. Formerly the Kikuyus were known as forest destroyers, but now they are called "Watu Wa Miti"—"Men of the Trees" on account of the good work they are doing in tree planting. They have grown 80,000 trees in a nursery and make it a rule that every man shall plant from one to 50 trees each day.

The Kikuyu warriors have an organization something like the Boy Scouts and try to observe the rule of doing a good deed daily, such as planting a tree.

Oregon Ships Cream to S. F.

BECAUSE cream shipped from Klamath County, Oregon, to San Francisco nets dairymen 7½ cents per pound more than Portland pays for butterfat, considerable butter material is sent from this community to Bay City creameries. The completion of the Natron Cutoff, now being constructed, is expected to result in much larger shipments of Oregon cream to San Francisco, since the new line will open up a rich dairying country in the vicinity of Klamath Lake, now largely undeveloped. Portland's low cream price is attributed to the fact that all attempts to organize Oregon dairymen have failed, leaving producers at the mercy of private creameries.

Injuring Dried Peach Prices

INDEPENDENT packers are engaged in a concerted effort to force down prices of dried peaches, according to the California Peach and Fig Growers' Association. The latter obtained 8 to 13c for last year's crop, while the independents are offering the 1924 crop at 7 to 10c.

As an officer of the Growers points out, there is no justification for this ruinous price cut, since a month ago there were but 6000 tons of dried peaches remaining unsold and during the previous twelve months 34,000 tons were sold and practically all consumed. The crop this year is estimated at only 22,000 tons, indicating there will be an actual shortage, instead of a surplus.

Last year 4000 tons were exported and 30,000 tons consumed at home, while stocks now on hand and the coming crop will total only 28,000 tons.

"Will peach growers stand together and prevent this attempted price cutting on the part of independent packers?" asks an association officer, "or will they supply ammunition to those who are making war upon them, by selling their crop outside the association?"

Brand Walnuts "Wonderland"

THE Oregon Walnut Growers' Association recently formed a central selling agency and expects to form local organizations at Salem, Forest Grove, Gaston, McMinnville and other strategic points. Dundee is the only community now having a local association.

"Wonderland" is the trade name under which Oregon walnuts are to be marketed. Franquette and other hardy varieties are grown commercially in the Willamette Valley.

New Cantaloupe Ships Well

THE new Texas honey ball melon, a cross between the California honey dew and the Texas cannon ball cantaloupe, can be shipped without refrigeration to any point in the United States requiring no more than ten days or two weeks' time in transit, according to the U. S. Department of Agriculture.

The acreage planted to the new melon has increased from sixty-five last year to 2500 this year. More than a thousand carloads are being harvested.

The flesh of the honey ball is similar to that of the honey dew, but the rind is fairly well netted. Exceptional flavor and keeping qualities are claimed for the new hybrid.

Buy Supplies Co-operatively

THREE-FOURTHS of the 2690 grain marketing associations in the United States buy feed and fuel for their members, while one-fourth of them buy containers co-operatively. One-half the 753 fruit and vegetable associations reporting to the United States Department of Agriculture buy containers and fertilizers, while one-fourth purchase spray materials.

The consensus of opinion among co-operative managers is that where merchandise is bought and sold it should be disposed of to members at regular market prices and any profits accruing from the business pro-rated to purchasers at the close of the year, in proportion to the amount of goods bought. Price cutting has proved a fruitful source of trouble.

Are Japs Obeying Lease Law?

VEVRY few Japanese have left Chula Vista, National City, La Mesa and other gardening districts of San Diego County, according to a report made to the Farm Bureau by Felix Landis. Although the new California Alien Land Bill prohibits Japanese from owning or leasing land, it does not forbid them from working for wages.

It is believed, however, the law is being evaded by illicit agreements between land owners and Japanese gardeners, as the latter continue to harvest old crops and plant new ones, just the same as before the law was enacted.

The district attorney at San Diego has announced his intention of prosecuting vigorously all violations of the law named which are brought to his attention, but emphasizes the fact that he has no staff of investigators to hunt for those who may be breaking the statute in question.

FARMER'S *Viewpoint*

The orchardist's search for an ideal picking crew is likely to be as fruitless as an apple tree adjoining a school yard.

There are two kinds of "hired hands": One is willing to work, but won't stick; the other is willing to stick, but won't work.

It takes a new hired man about one week to change from the producing to the consuming class. The commissary department of an army has an easy job compared with that of the housewife who undertakes to stoke a threshing crew.

Science affords no example of lightning speed comparable to that of the itinerant bale "skinner" in answering the summons of the dinner bell. But when it comes to feeding his hungry team in the chill, gray dawn, a snail is a streak of greased lightning by comparison.

Once there was a farm hand who died from overwork; he suffered a clot on the brain from studying methods of saving labor.

The station agent at our town says he can spot the men who are going out to work on the farms, because they always buy round trip tickets.

Farmers used to employ their men by the month; now they hire them by the dozen.

The "going" wage is any wage that the employer won't raise. Usually there are two men going for every one that's coming.

"Bunk House"—Definition: A lodging place for traveling men; a depository for cast off clothing.

"Once in a while," says Justin Nott, "You'll find a farmer whose man stay with him for many years. And ye kin rest assured he's either a prince or a pauper!"

Hot Weather Responsible for Loss of Southland Peach Crop

Unseasonable Winter Conditions Cause Calamity—Treatment of Trees—Summary of Conditions

By GEORGE P. WELDON

Pomologist, Chaffey Junior College of Agriculture. Contributing Editor of ORCHARD and FARM.

GROWERS realized their 1924 crop prospects had dwindled when, on June 1, peach trees in the district surrounding Ontario, Chino, Cucamonga and Wineville, also in the San Fernando Valley and in San Diego County, were developing just enough foliage to take on the green appearance they should have had more than two months before.

PROFESSOR WELDON

Even yet some orchards are in a semi-dormant condition, and there is serious danger of bad sunscald from the hot, summer weather which is now at hand. Fortunately the cool spring and early summer were most favorable in protecting these bare trees from early sunscald damage.

With the condition described, so general in the South, there is naturally a very short crop of peaches. In the Ontario district the writer would not estimate over 10 to 15 per cent of a normal crop, most of which is of three varieties: Lovell, Elberta and Ontario, the latter being the only cling that has set much fruit in spite of severe injury.

While peaches are damaged more than other fruits, the trouble is also noticeable in apples, pears, plums, walnuts, cherries and other deciduous kinds. This fact is indicated by the following list of varieties of different kinds of fruit, showing their condition in the middle of May. These data were gathered in the three-year-old variety test plot of the Chaffey Jr. College of Agriculture:

Kind and Variety — **Condition**

APPLES

Transcendent Crab—No injury.
Rome Beauty—Trace of foliage.
Keeper (seedling)—No injury.
Winter Banana—No injury.
All Gold (seedling)—Practically dormant.
Rhode Island Greening—70% foliage out.
Newtown Seedling—80% foliage out.
Newtown—20% foliage out.
Newtown—60% foliage out.
Surprise (seedling)—50% foliage out.
Green Rock Crab—15% foliage out.
Bismark (seedling)—Trace of foliage.
Bedfordshire (seedling)—20% foliage out.
White Winter Pearmain—No injury.
Hyslop Crab—No injury.
Red June—10% foliage out.
Stayman Winesap—5% foliage out.
Stayman Winesap—10% foliage out.
Stayman Winesap—2% foliage out.
Delicious—40% foliage out.
Delicious—10% foliage out.
Red Astrachan—10% foliage out.
Red Astrachan—40% foliage out.
Titan (seedling)—Almost dormant
Black Ben Davis—10% foliage out.
Black Ben Davis—20% foliage out.
Winterstein—No injury.
Jonathan—40% foliage out.
Jonathan—25% foliage out
Northfield Junior (seedling)—20% foliage out.
Trebla (seedling)—80% foliage out.
Epochal (seedling)—25% foliage out.
Mann (seedling)—No injury.
Winesap—15% foliage out.
Winesap—5% foliage out.
Delilah (seedling)—40% foliage out.
King David—70% foliage out.
King David—90% foliage out; many blossoms.

PEARS

Seckel—No injury.
Anjou—No injury.
Anjou—60% foliage out.
Bartlett—5% foliage out.
Winter Bartlett—30% foliage out.
Winter Bartlett—20% foliage out.
Winter Bartlett—40% foliage out.
Winter Bartlett—50% foliage out.
Winter Nelis—No injury.
Comice—No injury.
Madeleine—No injury.
Flemish Beauty—No injury.
Lawson—90% foliage out.
Lawson—85% foliage out.
Kieffer—No injury.

APRICOTS

Moorpark—95 foliage out.
Moorpark—No injury.
Moorpark—95% foliage out.
Tilton—95% foliage out.
Tilton—No injury
Tilton—95 foliage out.
Newcastle—No injury.
Royal—No injury.
Darby (young tree)—No injury.

NECTARINES AND PEACHES

Boston Nectarine—Trace of foliage.
Hardwick Nectarine—10% foliage out.
Hardwick Nectarine—15% foliage out.
Advance Nectarine—5% foliage out.
Advance Nectarine—15% foliage out.
J. H. Hale—30% foliage out, much bloom.
J. H. Hale—50% foliage out; much bloom.
J. H. Hale—20% foliage out; much bloom.
Mayflower—5% foliage out.
Mayflower—Trace of foliage.
Alexander—Trace of foliage.
Foster—5% foliage out.
Foster—15% foliage out.
Foster—20% foliage out.
Buckhorn—50% foliage out.
Buckhorn—60% foliage out.
Buckhorn—50% foliage out.
Stanwick Nectarine—Trace of foliage; considerable bloom.
Indian Blood Cling—15% foliage; considerable bloom.
Opulent—10% foliage out.
Opulent—Trace of foliage; bloom.
Australian Saucer—No injury.
Lovell—15% foliage out.
Phillips—10% foliage out.
Ontario (Southern Tuscan) 40% foliage out.
Early Imperial—No injury.
Miller Late—Trace foliage; bloom.
Miller Late—5% foliage, bloom.
Lukens Honey—No injury; heavy crop of fruit which required thinning.
Peak—50% foliage out; blossoms.
George 4th—Trace of foliage; bloom.
Salway—5% foliage, bloom.
Muir—Trace of foliage.
Muir—2% foliage; bloom.
George 4th—Trace of foliage.
White Heath—15% foliage.
White Heath—20% foliage.
Champion—5% foliage, bloom.
Lemon Cling—60% foliage.
Elberta—10% foliage; blossoms and fruit.

PLUMS

*Burbank—5% foliage, blossoms and fruit. (*All three just beyond full bloom.)
Apex Plumcot—40% foliage; bloom.
Gaviota—90% foliage out
Duarty—60% foliage; blossoms and fruit.
Duarty—50% foliage; blossoms and fruit.
Santa Rosa—No injury; good set of fruit.
Kelsey—No injury.
Imperial Prune—85% foliage out.
Imperial Prune—80% foliage out; blossoms.
Standard Prune—No injury.
Improved French Prune—85% foliage out.
Improved French Prune—90% foliage out.
Hungarian Prune—5% foliage out.
Hungarian Prune—Trace of foliage; blossoms.
Robe de Sargent Prune—5% foliage, bloom.
Robe de Sargent Prune—Practically dormant; some bloom.
Robe de Sargent Prune—Practically dormant, trace of bloom.
Tragedy—No injury.
Climax—20% foliage.
Climax—10% foliage.
Climax—25% foliage.
Wickson—No injury.

CHERRIES

Governor Wood—80% foliage out.
Royal Anne—50% foliage out.
Royal Anne—80% foliage out.
Black Tartarian—No injury.
Bing—No injury.
Bing—70% foliage.
Lambert—60% foliage.
Lambert—20% foliage.
Morello—5% foliage; bloom.
Morello—5% foliage; bloom.
Richmond—No foliage; trace of bloom.

Tree in full leaf, a striking contrast to the one above, showing the value of windbreak protection.

Five rows away from a eucalyptus windbreak. Note almost total absence of foliage, due to atmospheric dessication.

The old-timers in the deciduous fruit business of Southern California remember one year (which most of them say was 1904) when a similar condition existed. That year, according to their statements, peach trees did not come into full leaf until midsummer or later.

There has been an exceptionally fine opportunity to study the difficulty in this district, and the writer has spent many days in affected orchards.

Hot weather during the winter, particularly during the month of February, has been given the major blame. As evidence that the sun was the principal offender, many orchards have been located where trees have been protected by a windbreak row of trees on the south. North of the windbreak or in its shade, peach trees have developed about normally. From two to five rows away from the windbreak row, the peach trees show protection, the number of rows protected depending upon the height of the windbreak. The lower the windbreak the fewer the number protected; the taller, the greater.

On the north side of a building, similar conditions obtain. In some cases branches of a tree have been seen reaching above a building and exposed to the sun, showing bad injury, while the lower or shaded portion of the tree presented a normal appearance.

Again, the north side of an individual tree in the orchard has started everywhere throughout the district before the south side. Soil moisture has had little influence on the affection. Trees watered heavily throughout the year are only slightly better on the average; in some cases the opposite is true.

Col. H. B. Hersey, meteorologist, Weather Bureau, Los Angeles, has this to say in a letter recently received:

"You will note from our reports that June, July and August (1923), were all below normal in temperature, but beginning with September each month was above normal until the end of the year, with November showing a decided plus departure, while January, 1924, had cold nights, the days were unusually warm, bringing the average temperature considerably above normal. Then came the warmest February ever experienced at this station, the mean temperature running 7.1 degrees above normal for the month, and this was followed by a March a little below the normal, with the first rainfall of importance since the preceding December."

Local weather records kept at Chaffey showed that on February 13, 1924, the maximum temperature was 84.5 degrees Fahrenheit, with the humidity instrument reaching the lowest point it would register. High temperature, dry air and a dry wind were without doubt the factors directly responsible and only in the shade was there protection sufficient to save the trees from injury. Transpiration under weather conditions as described would be exceedingly rapid and it is not strange that buds should have been dried out.

Heavy irrigation during the summer will aid in bringing the trees back to normal. Fertilization will also aid in stimulating the growing processes. Whitewash applied to bare trees, on the south side, has been tried in a few cases, as protection against subsequent sunscald. It remains to be seen what kind of pruning will be necessary. At present it is thought best to refrain from pruning. The best of care in every respect should be given these sick trees.

Across the orchard, where there was no protection; the other, looking towards the building, showing tree protected by shade.

Another contrast. These views were taken from the same spot; the one at the left looking away from the building.

Swat the Roosters Now

A LARGE part of the loss caused by eggs spoiling in warm weather can be prevented by producing only infertile eggs during the late spring and summer. The loss, which is conservatively estimated at more than $15,- [illegible] a year, falls almost entirely on the producer.

[illegible] lose the value of the eggs which spoil but the producer [illegible] a further material loss in the [illegible] of the number of [illegible] consumers [illegible] by [illegible] getting bad [illegible] they purchase.

[illegible] entirely [illegible] fertile [illegible] during [illegible]. This is accomplished [illegible] of the [illegible] ever. [illegible] the [illegible] should [illegible]

Why Goat's Milk Makes Ideal Baby Food

WHEN mother's milk enters the stomach it curdles, and the action of rennin is the same as with cow's milk, but there is a vast difference in the curds of the two. The fluid surrounding the curds of mother's milk, the so-called whey, is very turbid in appearance and in sharp contrast with the whey of cow's milk. Instead of the very large and tough white curds of cow's milk, these are tiny soft, fluffy curds, yellowish in color and readily digested.

There is no perceptible difference in the way goat's milk is acted on by the stomach, its constituents being quite the same as mother's milk. The chemical elements are very similar in quantity and we know it is about the [illegible] in its physiological properties and [illegible] construction.

[illegible] it [illegible] easily digested [illegible] cow's milk.

The fat globules of goat's milk are about one-fifth or one-fourth less in size than fat globules of cow's milk. Not only that, but the walls of goat's milk fat globules are also one-fifth or one-fourth less in thickness than fat globules of cow's milk. It can readily be understood how the process of breaking up the curds is facilitated by this condition. The mass of curds is penetrated more easily by the gastric juice and the action of the rennin and ferment is accelerated by this minuteness and easy division of the curds.

The result is that in little more than half an hour the soft fluffy curds are fairly prepared for digestion, while in cow's milk it takes two or more hours.

As the action described is similar both for mother's or goat's milk, we [illegible] without contradiction that goat's milk is the one best substitute for mother's milk.

This is because of its [illegible] to be taken raw, as nature intended, with all its physiological properties [illegible] and because of practical freedom from tuberculosis.

It is indeed an ideal food, a [illegible] which can be produced at a [illegible] than any other and can be had at all hours of the day or night [illegible] your back door.—DR. C. [illegible] LANGLE[illegible]

Tells How to Graft

"A good book on grafting and budding deciduous fruits is "Principles of Plant Propagation," by L. H. Bailey. This book is published by the MacMillan Company and can be purchased through any book dealer. "This is probably the most complete thing that we have," says Professor Weldon in reply to an inquiry from Charles Kenn[illegible], Dos Palos, Calif.

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Successful turkey raisers are using the Nicholls System of Scientific Feeding. This method is the result of 27 years of research and experiment with all kinds of feeding. Out of this experience has come a perfected Baby Turkey Feed. It contains just the elements needed to sustain life and health. You don't need much Orange Brand Baby Turkey Feed—but you do need it.

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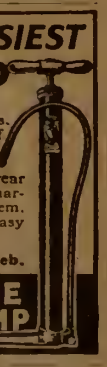

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We are all interested in what the other fellow is doing—how he solves problems similar to ours, in what manner he has achieved success.

To get first-hand information, ORCHARD and FARM sends its representatives afield with camera and note-book.

Not the easiest way to edit a farm journal but indicative of our desire to give PRACTICAL SERVICE.

Deserves Title 'Mortgage Lifter'

The Hog an Essential Link in Our Agricultural System—Makes By-products Profitable—Some Feeding Facts

By E. H. HUGHES
University Farm, Davis

PORK production is essentially a part of the enterprise of general farming. Even in exclusive grain and fruit districts, hogs perform an important function in saving the waste of grain fields, orchards, vineyards and gardens. They utilize the offal of packing plants, the kitchen waste and the by-products of the milk room.

Dairy farming cannot be conducted along the most efficient lines without a sufficient number of hogs to consume the skim milk, buttermilk and whey. Hogs are also essential to successful beef production; this is particularly true where cattle are fed grain in the feed lot. Pork produced from either the undigested grain in the feed lot or on pasture is clear gain and is one important factor in profitable cattle feeding.

The hog occupies an important place on the American farm gained through his inherent ability to produce a profit above the cost of production. Profitable production can be a reality with a limited amount of capital invested in foundation stock, labor and equipment.

Climatic conditions, large acreage of alfalfa pasture, low overhead costs, strong markets (demand exceeds supply) and the feasibility of producing two litters per year provide an ideal condition for the production of swine in California. The feeding of grain and other products, forage, fruits of low quality and by-products of various sorts to swine is general here. In addition fertility is returned to the land where it belongs, which is an important factor if we are to maintain a permanent agriculture.

MARKETING BARLEY AS PORK

The California Experiment Station has found that rolled or ground barley, if fed alone in dry lot to fattening pigs, can be marketed in the form of pork at a cash value of $1.42 per hundred pounds if the live hog sells for $8 per hundred pounds. The records indicate that 562.3 pounds of barley were fed for every 100 pounds of grain produced by these hogs. This barley, when figured in terms of pork produced, was worth $1.42 per hundred when fed pigs that sold for $8 per hundred. The manure from these feeds represents an additional profit, not in dollars and cents, but in the increased efficiency of the farm on which the hogs were produced fattened and marketed.

Barley when fed alone, however, does not constitute a balanced fattening ration, nor does the man who feeds straight barley get as much for that barley in the form of pork as the producer who feeds some nitrogenous concentrate with it. The California Experiment Station recently fed a lot of ten pigs barley and skim milk.

A gain of 100 pounds was thus produced on 280.48 pounds of barley and 841.45 pounds of skim milk. If they sold for $8.00 per hundred pounds, and if the skim milk is figured at 30 cents per hundred pounds, the barley that was fed to these pigs had a cash value represented in pounds of pork of $1.95 per hundred. Comparing the results of this test to that in which barley was fed alone, the balancing of this ration by feeding skim milk with barley provided an added cash value of 53 cents per hundred for every 100 pounds of barley fed.

PASTURE CROPS LOWER COSTS

To illustrate the value of feeding hogs on pasture the results of several experiments at the University Farm are presented. Forty-eight pigs were fed at different times ground or rolled barley on alfalfa pasture. When 20 pigs were fed on each acre for a period of 84 days, 1864.8 pounds of pork were produced. (Barley was fed in addition to pasture.)

The amount of barley fed per 100 pounds of gain produced in this test was 433.5, or the barley required to produce 100 pounds of gain was 128.8 pounds less when fed with alfalfa pasture than when the hogs were fed in dry lot. This acre of alfalfa saved 2401.86 pounds of barley in 84 days. If this barley had a cash feeding value of $1.42 per hundred pounds, the pasture value of that acre of alfalfa, in terms of barley saved, was $34.11. It is a conservative estimate that it is possible to pasture alfalfa for at least 220 days per year in this State. The value of an acre of alfalfa when pastured by fattening hogs is worth in this instance considerably over $75 per year.

Experiments conducted at this and other stations indicate that the following are all important factors in economical pork production on any farm: Common sense methods of handling our grain and other products, the feeding of a balanced ration and the proper use of pasture crops; the use of purebred sires and the selection of brood sows that will produce and raise large litters and the building up of the herd by proper selection; a knowledge of market requirements and values and the returning of fertility to the land where it belongs.

PUREBREDS MORE EFFICIENT

Purebred herds of Duroc Jerseys, Poland Chinas, Berkshires, Hampshires, Chester Whites, Tamworths and a few Essex and large Yorkshires are to be found on California farms. Three and nine-tenths per cent of the hogs in the State are purebred. Purebred hogs sell for relatively higher prices than do grades and scrubs. A better understanding and an appreciation of the value of purbred swine over grades, because of the superior ability of these pigs to handle feed more economically and because of their additional market value, will help materially in the development of pork production in this State to a point where the supply will meet the demands of the consuming public.

Raise Philippine Rubber—Why Not?

VAST tracts of land suitable for rubber raising have been located on territory within the possessions of the United States Government by a party of investigators sent to the Orient by the Department of Commerce. These lands, now growing native grasses and timber, are located on the Island of Mindanao, in the southernmost large island of the Philippines, and adjacent smaller islands. The island of Mindanao has an area equal to that of the State of Indiana, but its fertility and extent usually have not been appreciated.

PLANTATIONS PRODUCING

Nearly 80 per cent of the rubber produced in the world is consumed in the United States and, so far as is known, practically all is grown within 15 degrees latitude of the equator. The possession of the land described within the climatic range of possible rubber production offers an opportunity for United States capital to engage in one of the most important industries in territory within the restrictions of our own Government.

At present there are three producing plantations on the small island of Basilan and one in the interior of Mindanao. The largest plantation of the three consists of 180,000 trees. Ordinarily plantations can be brought to the tapping age in about five years. The oldest rubber tree on the island dates back to a small planting made about seventeen years ago.

Speaking of the character of these soils, Mark Baldwin, soil expert says: "There are on these and adjacent islands large bodies of land well adapted to the growing of rubber trees and there is much direct evidence of this fact. Although rubber trees will grow on a wide range of soils they make a better growth on the richer ones. These soils in question are more fertile than much land in the Malay peninsula and Sumatra, where rubber now is grown extensively."

The entire process of producing raw rubber and making it ready for shipment to the place of manufacture into other products usually is carried out on the plantation. The collection of the latex, or sap, so named because of its similarity in appearance to milk, is done by stripping off a small section of the bark each day and gathering the "run" in cups about the size of an ordinary tea cup.

HOW RUBBER IS PREPARED

The combined output from all the trees is taken to the vats on the plantation and coagulated by the addition of an acid, usually acetic acid. The product is a white elastic mass which is washed and then machined into long sheets and dried into form called "crepe sheet" or smoked to form "smoked sheet."

In this form it possesses most of the properties of rubber as we know it in the common rubber band. The sheets then are folded and packed for shipment. Although most of the product is marketed in this way, unprocessed latex is being shipped directly to the United States in tanks.

"Filaree" Honey

FILAREE the alfilaria of the botanists—is one of our most valuable sources of honey and pollen in early spring.

Besides furnishing forage, greedily devoured by all kinds of stock, and a valuable green crop for the orchard, it gives to the bee almost the first gathering of pollen for larval food and honey beyond the daily needs.

Often one can extract considerable quantities of the fine light-ambered honey just as the orange bloom comes on in abundance.

If winter rains come on schedule time filaree will keep the bees busy until March; if they are delayed its period of development is greatly shortened. This year, owing to the severe winter drouth, it was scarcely to be seen until the spring rains set in, March 26.

HAS SHORT SEASON

Now, just 60 days later, it has run its course, blossomed and gone. Like the burr-clover and foxtail it crumbles to dust and disappears, to await its seasonal awakening.

The pollen of filaree is readily distinguished by its deep red color in the pollen-baskets of the bee. The blossom is a "half-day" flower opening with the sun on bright days and closing for the day at noon. Often, however, it will delay opening on cloudy mornings until the sun appears at midday.

Botanists are not agreed on the filaree, some claiming there are two varieties, others only one. I think the variation is caused by environment and soil conditions.

When it is sown as a cover crop in orchards, the bloom is sparse and light colored, while the growth is rank. As a mild pasture plant the flower is bright rose-pink while the plant makes a beautiful lace-like mat several inches across, which hugs the ground closely.

A "COLONIZING" PLANT

Like many other Coast plants filaree "colonizes" until it drives out most other plants of its season. I have an apiary on an acre of ground. For two years it was covered with a very short, thick, wiry native grass for which I have no name.

Last year some filaree appeared. This year the long-delayed spring rains brought on a complete nest of filaree, to the exclusion of all other plants. It grew 18 inches high, with light-pink flowers that simply loaded in nectar, splashing ones leggings and trousers as one waded through it. Evidently, here were just the conditions it required to make a perfect growth.—J. D. BIXBY, SR.

Forcing Nut Buds

A BIG majority of English walnut buds which I had put into black walnut seedlings late last summer remained alive but refused to grow—a common experience. This spring the treea were topped and bark buds forced out, sometimes as thick as grass, but only a few inserted buds began to grow.

At risk of ruining the seedling stocks they were cut back to within an inch or so of the buds and all new shoots kept rubbed off. This caused many English walnut buds to start growing and it seems doubtful if any live ones will remain dormant.

A neighbor who had a number of young Franquettes budded to Eureka last fall had similar difficulty in getting the buds to grow, although nearly every one "stuck." Noting my experience in forcing growth, he girdled several trees just above the buds. Results will be reported later.

Judging by my rather limited walnut experience, I believe it is cheaper and better to bud young blacks in the orchard than to wait a half dozen years and then graft the seedlings. In fact, I am inclined to believe it is better to plant budded trees in the first place and thus save all top-working expense.—TULARE FARMER.

Farm Will Win Out

"I WOULD not trade my farm, despite all the agricultural depressions which you hear about, and which I know about, for any business represented in this room today," declared James R. Howard, chairman of the National Transportation Institute, in an address before the Rotary Club of Chicago. Howard gave his reasons for believing that farming is the surest business in the United States today. The present agricultural depression is an invitation to far sighted men to get into farming, or to invest in agriculture he asserted.

"If any of you are qualified financially and physically and mentally to run a farm I unhesitatingly recommend you to go back to the soil. My reasons are briefly stated:

"Whenever any commodity is below cost of production, buy. It will surely go higher. Whenever any commodity is above cost of production, sell. It will inevitably go lower. The products of the farm are, and have been for four years, below production costs. They must inevitably sooner or later go higher else all history and economics [illegible] themselves.

"Whenever men and capital are rushing in large numbers and volumes toward any essential or non-essential industry beware—stay out; the industry will soon be overdone. Whenever men or capital are being substracted from an industry, particularly an essential industry, get into it. Your efforts and capital will not only be needed, but rewarded. The man who can stay or who can go to the farm is bound sooner or later to strike pay dirt."

Better Beef Means Better Market

By GORDON H. TRUE

Professor of Animal Husbandry, College of Agriculture, University of California, Davis, California

IT IS interesting to note the spread in prices of beef cattle at the present time and to compare that spread on Chicago and Pacific Coast markets. During the week closing April 24, the price of steers on the Chicago market ranged from $6.75 @$8.50 a hundred for "light, warmed-up steers," to $11.75 @$12.60 for "prime heavyweights." "Good to choice handy weights" crowding closely upon the heavy weights at $11.50@ $12.50.

PROFESSOR TRUE

The most interesting thing in this range of prices is the fact that the cattle grading below "fair" sell at from $4 to $5.65 less a hundred than the top steers on the market.

It is because of this difference in value between cattle that have been finished by feeding and the unfinished sort, that Middle Western cattlemen are encouraged to feed cattle for market.

San Francisco market quotations for a corresponding date show common to medium grades of cattle selling at from $5.00 to $8.50 a hundred, with an estimated value of $9.00 for good steers if available.

The significant thing about this market is that no cattle of "top good" or "choice" grade were available—this in spite of the fact that a spread of $3.50 a hundred between "low common" and "good" grades is shown by sales on the market, a sufficient difference certainly to justify feeding.

Statistics show that California does not produce all the beef its people consume. From this fact it has been argued that California cattle therefore should bring Eastern market prices plus freight. This is a plausible theory but in order for it to work out, California must produce a balanced supply of beef and not an excess of the demand in any particular grade. Those who know our markets say that fully 90 per cent of California cattle offered grade as common. This being the case, does this fact not explain the $5.00 to $7.50 San Francisco price for common cattle which is $.75 to $1.00 less than the low price on Denver, Kansas City or Chicago markets for the same grade?

In comparing San Francisco quotations with those of other markets named, it must be remembered that San Francisco prices are for cattle weighed empty off the cars, whereas in the other markets they are weighed full.

It is also significant that yearling cattle constitute the bulk of the grades quoted at from $9.50 to $12.50 on the Chicago market.

Why should California cattlemen be selling two or three-year-old, thin steers at from $5.00 to $8.50 a hundred when other markets show a demand for yearlings at from $4.00 more per hundredweight?

Reasons for feeding then are: In order to get higher prices for our cattle; in order to market our cattle at a younger age; because even common cattle will not bring their value if there are too many of them offered on a given market.

The Pacific Coast cities do not show a strong demand for the better grades of meat. The packers give this as a reason for not paying more for the better grades of cattle. If they could have a steady supply of choice cattle, they say, they could build up a trade in choice meats. This sounds reasonable. The only way to create a demand is to furnish the meat. Choice meat does not come from common steers. People will not ask for choice meat when they do not know what it is.

The establishment of a trade in better meat is not a job for the cattleman, the packer or the butcher alone. It is a job in which all three must co-operate. No two can get results without the help of the other. But it's the cattleman's first move.

THE 40TH DOOR

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(From the Novel by Mary Hastings Bradley)

In Ten Weekly Chapters

Was beauty hidden by the veil?

It was at a masquerade ball in Cairo.

He, the fine young American, saw her shrinking, afraid of the boisterous attentions of some young men. He interfered. Her big eyes looked up to him in gratitude. What he saw of her fascinated him.

But the lower half of her face was concealed by the Mohammedan veil!

Who was she? If she was a Mohammedan, how did it happen that she was at a public ball, unescorted? What beauty lay hidden behind that veil?

See this fascinating story in an absorbing motion picture. You'll find it interesting, romantic, thrilling. There's a theatre near you which will show it. We'll be glad to send you FREE, a set of eight scenes from the picture, if you mention the name of the theatre you patronize.

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Hogs May Suffer a 'Nervous Breakdown'

"A PECULIAR disease has made its appearance among my hogs," writes Clark Mercer, Chico, Calif. "Recently I lost a fine boar. He had been vaccinated for cholera when a little pig. He appeared weak in the back and staggered in his hind quarters. Finally he got down in his hind parts and his legs appeared paralyzed.

"He was in good flesh, had plenty of water, was on green pasture of barley and alfalfa with charcoal and wood ashes in the [illegible]. The other hogs all appear to be well, but I would like to know what was the matter. If it is something contagious, would like to prevent the others from taking it."

Professor E. H. Hughes of the University Farm, Davis, gives the following information in reply:

The condition you speak of in your letter is more or less common among herds of the State. Occasionaly older sows, particularly, will apparently suddenly break down in their backs and drag their hind quarters about. We have had such cases at the University Farm. The Veterinarians tell us this is apparently a deficiency disease. Such cases are not common among younger animals. They appear to be more common among brood sows and apparently sows that have produced two litters per year for a number of years are more susceptible to this condition than sows that have only farrowed one or two litters. Nutritionists believe that it is caused by either a lack of minerals in the ration or by a lack of vitamines. It is possible that the deficiency in the amount of minerals or the number of vitamines was not present at the time the animal broke down, but rather that it happened some time previously.

The lack of minerals and the lack of vitamines apparently causes a nervous disorder which naturally results in a nervous breakdown or paralysis. If one notices an animal staggering it is possible, in some cases, to cure them by changing the ration, giving alfalfa hay or feeding on alfalfa pasture and putting in the feed about a tablespoon of cod liver oil twice a day for a time and later reducing it to once a day. The cod liver oil carries a high per cent of certain vitamines and this has been known to help individual cases. So far as we know there is no absolute, specific cure.

It is very likely that you might not have another case for two or three years. Such a condition is not contagious.

Water Prevents Frost

A GOOD example of the way frost injury can be prevented with water is afforded by the experience of Frank S. Montgomery, who has a 17-acre Valencia grove near Exeter (Tulare County). The location is out on the open bottom, near the edge of the citrus belt, where there is no natural frost protection.

The ground was furrowed out deeply, as for irrigation, four trenches being opened up down each middle and two cross furrows in each middle the other way. This made it possible completely to surround each tree with water.

Much more water was used than for irrigation, the flow of the home pumping plant being augmented with supplies from two neighbors' wells. So well had the ditching been done that nothing more was needed than to start and stop the pumps. This was done on 40 different nights.

Although all the other fruit in the neighborhood was ruined by frost, 70 per cent of Montgomery's oranges were uninjured in this manner. If the cold had not been quite so severe, the water would have afforded 100 per cent protection.—TULARE FARMER.

Please Mention ORCHARD and FARM When Answering Advertisements

Use Poison Bran Mash for Grasshoppers

The use of poison bran mash is [illegible] commended for the control [illegible] hoppers under favorable con[illegible] and will also aid in the control [illegible] insects as cut worms, crane fly [illegible] crickets and certain ground [illegible]. The State Department of [illegible] advises using the following [illegible]:

[illegible] green (or white arsenic), 1 [illegible] molasses (cheap black [illegible]) quarts, lemons, ½ dozen; [illegible], 4 gallons; wheat bran, 25 [illegible].

[illegible] materials as follows: Grind [illegible] with a meat grinder. Make [illegible] green into a thin paste with [illegible] water. Then pour all the in[illegible] and stir thoroughly. [illegible] mixing box or on a [illegible] pour the liquid over [illegible] the latter is he[illegible] shovel of a [illegible]. It [illegible] uniform dis[illegible] [illegible] white [illegible] preferably [illegible] may [illegible] results may be expected by substituting alfalfa meal, which will require an extra gallon of water in the mixture.

The poison may be spread by hand from a bucket if thrown vigorously to secure a fine distribution. If large areas are to be covered it has been found most practical to spread the bran mash with an end gate grain seeder attached to the rear of a farm wagon and geared to one of the rear wheels. The poison bran bait should be spread so that it falls on the ground as fine as possible, avoiding lumps; which are a waste of material and may be dangerous by poisoning poultry. The above ingredients should be sufficient to cover four or five acres.

Conditions most favorable for poisoning grasshoppers are: An extremely hot day, dry weather, spreading the poison in alfalfa before the crop is cut, spreading the poison in the heat of the afternoon, except in bean fields and orchards where the morning appears to be favorable.

Mix and keep the poison away from livestock. After the bran mash has been properly spread it should be so finely scattered that there is [illegible] [illegible] of poisoning animals.

Carbola is a white paint and a powerful disinfectant combined in powder form. Ready to use as soon as it is mixed with water. Easily applied with spray pump or brush.

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SANITATION is the most powerful and economical weapon you can use in fighting the foot and mouth disease. A bright, clean, sanitary stable is the best health insurance you can get for your herd. Cover the interiors of your dairy barn with Carbola, the Disinfecting White Paint. Spray it or brush it on walls, ceilings, floors, mangers, stanchions — on every surface where disease germs may lurk. It will help to keep your stock free from contagion. Do it without delay.

Your dealer has Carbola or can get it from Ansel W. Robison, 1196 Market St., San Francisco, or from the Germain Seed & Plant Co., Los Angeles—both Wholesale Distributors of Carbola. If your dealer cannot supply you, order direct from the nearest of these two distributors.

5 lbs. 85c and 10c postage 10 lbs. $1.50 and 15c postage 20 lbs. $3.00 delivered
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10c EACH "Superior Strain" S. C. White Leghorn baby chicks. July delivery. Big batches and low overhead enable us to sell our high-vitality chix in accordance with our established policy: "Highest Quality at Lowest Prices." June chix all sold. Booklet describing our strain free on request. SUPERIOR EGG FARM, Anaheim, Calif.

CERTIFIED CHICKS for summer and fall months from accredited free-range flocks, headed by cockerels direct from America's greatest specialists. Accredited "AA" grade chicks at single "A" prices. Send for catalogue. MUST HATCH INCUBATOR CO., INC., 432 Seventh St., Petaluma, Calif.

CERTIFIED White Leghorn Chicks from selected free range, high-producing hens, mated with double pedigree cockerels with authentic trapnest records of 237-278 eggs. Certified by Alameda County Farm Bureau. Utility prices. CHANTICLEER ELECTRIC HATCHERY, INC., Hayward, Calif.

WHITE LEGHORN BABY CHIX of unusual value, from especially well culled hens, mated with full pedigreed males. Prices per 100: June, $12. 100 per cent live, strong chix guaranteed. We are accredited by the Sonoma County Farm Bureau. The PIONEER HATCHERY, 476 Sixth St., Petaluma, Calif.

THROUGHOUT this summer and fall we will have hatching every Tuesday. R. I. Reds and Barred Rocks from strong and vigorous stock. Write the SANTA CLARA VALLEY HATCHERY, 1049 Lincoln av., San Jose, Cal.

ORDER your W. L. pullets from Petaluma's finest raising plant! "Pullets that will not disappoint you!" Write for information. L. MUNCHIN, Reliable Pullet Farm, Petaluma, Calif.

PULLETS RAISED TO ORDER. White Leghorns from pedigreed trap-nested proven producers. All ages. MRS. H. GILLESPIE, Tres Pinos, Calif.

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DO YOU WANT a home in a rich valley near Spokane on three transcontinental railroads, where soil is good, rainfall ample, summers cool, winters moderate, the kind of stump land that pays to clear; where a farmer with $1500 can hope to succeed; timothy and clover green eight months in the year; natural dairy country, land cheap, 10 yearly payments at 6 per cent. HUMBIRD LUMBER CO., Box 13, Sandpoint, Idaho.

OUR BACK-TO-LAND PLAN—We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land, deep, rich, tried soil, complete irrigation with cheap water, thorough drainage; rail, water and highway transportation. Write owners. SUTTER BASIN COMPANY, California Fruit Bldg., Sacramento, Calif.

NO COMMISSION. Sell your farm direct to buyer. We put you in touch with thousands of buyers through our chain office service. Owner only pays small listing fee for expenses. Booklets of farms for sale free. OWNERS' NATIONAL LISTING BUREAU, Inc., 443-444 Roberts Bldg., Los Angeles, Cal.

POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, Calif.

FARMS WANTED

CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

PIGEONS

SWISS MONDAINE PIGEONS are purebreds and, as you know, purebreds pay and pay well. If you are interested in this new industry send 15c to American Pigeon Journal, Warrenton, Mo., for their May issue.

SILVER KINGS—Vigorous stock. For particulars and price write Maple Leaf Pigeon Loft, 834 Main Street, Petaluma, Calif.

NURSERY TREES AND PLANTS

BEAUTIFUL Xmas Berry Plants. The Toyon, 4 years old; will berry next season. Grow your own. Get one while they last. Supply limited. $2.50 each. Ready for delivery now. Toyon Gardens, Bay Point, Cal.

MISCELLANEOUS

FRUIT JAR LABELS make your jars look neat and attractive, also make it easy to find just the jar you want. 400 assorted labels for only 60c postpaid. Check or money order. LESTER G. GARBE, 363 Frederick St., San Francisco, Calif.

FARMER WANTED to operate banana plant nursery in California. Demand increasing. Large profits. BOLLES BANANA NURSERIES, Oldsmar, Florida.

RICHEY'S RABBIT BOOK—Everything pertaining to the business. Finely illustrated. Price 75c. Mrs. Richey, 2[illegible] [illegible] Ave., Culver City, Calif.

Chamber Commerce, Farmers Co-operate

(Continued From Page Three)

standing of the organization. As a large part of the membership in many cases is composed of farmers, one of the first thoughts is to do something for the farmers who have parted with the $25 membership dues under the pressure of the solicitor and community sentiment. Following this conclusion, the usual decision is to elect two or three farmer directors to the Chamber Board.

Naturally the most prominent farmers in the community are thought of in this connection, and usually they are the Farm Bureau leaders. The result is that without any effort on their part they find themselves on the Board of Directors of the Chamber of Commerce and through them it is expected that the needs of the community in an agricultural way will be amply cared for by the organization.

Some standing committees on agriculture then are appointed, with the Farm Bureau men as chairmen. Social activities especially for the rural interests of the community are planned, and a great show of interest in the agricultural problems of the community made by the organization.

In all too many cases, the net result is that following the absorption of Farm Bureau leadership in the community, the local Farm Bureau center begins to wane and decline, and the contact of the community with the other agricultural sections of the county is broken, to the great detriment of Farm Bureau work in both the community and the county at large. The same general situation is more or less true in reference to the luncheon clubs which are now so popular in nearly all parts of the State.

I can recall instance after instance, where after years of effort with no spectacular results, but with a steady growth in organization spirit and genuine progress in the solution of the agricultural problems of the community, a Chamber of Commerce, or luncheon club, has been organized, and within a few months has absorbed the local Farm Bureau leadership.

It is this situation which is so discouraging to Farm Bureau workers throughout the State. It is generally admitted that the greatest need in agriculture today is trained leadership, and the Farm Bureau probably has done more in developing it than any other organization. It is certainly discouraging to see leadership develop after years of effort, only to be absorbed over night by organizations which in most cases history reveals are more or less transitory and while having their place rarely, if ever, serve the needs of agriculture.

The Chamber of Commerce and the luncheon club in many rural sections are serious competitors today to the Farm Bureau movement. The competition is unequal for the reason that the Chamber of Commerce usually is organized by efficiency experts, men who have had long training in organization affairs, in addition to which most of these organizations are well financed.

The combination of organization efficiency, ample finances, appeal to community pride and the social factor is in all too many cases more than the Farm Bureau center can endure. Nearly all of the Farm Bureaus are underfinanced, relying almost wholly on volunteer effort for the work done. Their efforts obviously are much less spectacular than those of luncheon clubs or Chambers of Commerce.

It is refreshing to read of a case where the two organizations have worked together to mutual advantage. As I view the problem, while it is one of the gravest confronting the Farm Bureau movement and still practically unsolved, there should be and unquestionably will be demonstrated ways and means for both organizations to continue their work in the same community, and for both to work together to mutual advantage.

It would seem there ought to be some clear cut analysis made of the functions of both organizations, with their points of contact in the community, and that then a plan might be developed providing for co-operation between them in the solution of the general agricultural problems of the community, each organization having its part to do and there being a definite understanding as to what each shall do, and how it shall be done.

I believe ORCHARD and FARM could render an important service both to Chambers of Commerce and luncheon clubs and to the Farm Bureau movement if through its columns might be conducted a survey of the State, covering this most important problem of how Chambers of Commerce and luncheon clubs and Farm Bureaus may work together in the same community for the improvement of the condition of the farmer.

Faithfully yours,

A SUBSCRIBER.

There should be no visible line between city and country in California. We should represent one great, happy, prosperous community, devoted to the common ends of good citizenship, sane development and prosperity. In future issues we shall describe accomplishments which seem to answer satisfactorily the above complaint. Happily the ailment appears to be readily curable.

And so, for the present we shall leave John Farmer and his friend Cityman arm-in-arm entering a soft drink emporium for such light refreshment as the town—depending upon its reaction to Volsteadian aridity—may provide, while the Bystander, speeding once more upon his journey, reflects upon the old, old story of the lion and the lamb.

(Editor's Note: This is the first of a series of articles on Co-operation Between City and Country. The second will appear in an early issue.)

Feeding During Molt

"PLEASE give me such suggestions as will help my flock of pure-bred white leghorns over the molting period and advise whether feed should be changed," writes R. C. Bowers, Inglewood poultryman.

I do not know what you are feeding your chickens at present so it is rather hard to answer your letter; in general, however a modified ration must be given during the time the hens are molting in order to meet the increased demands of the body for feather-making material.

To supply the necessary protein and oil it would be well to add to your regular ration such foods as meat, oil meal, sunflower seed, etc. In case they are already on the ration, increase the amount used.—W. J. DRYDEN.

MORE MILK BEING DRUNK

You will be interested to know that people are fast recognizing the wonderful health value of milk and are drinking more of it each day. In 1900 each person drank an average of one glass per day—now each person is drinking nearly two and one-half glasses each day.

LUMBER—Building Material

O. B. WILLIAMS CO., SASH and DOORS.
Largest Mill in the Northwest
Selling Direct to You.

SCREEN DOORS with strong mortised and tenon joints, covered with best galvanized steel screen, or with copper bronze wire cloth—$3.00 to $[illegible].

CUPBOARD DOORS, three-ply veneer panels—$1.[illegible] to $2.[illegible]. With glass and wood bars, $1.25 to $3.75.

Non-collapsible Ironing Board complete with cabinet to set into wall, and sleeve board, $15.00.

Write for FREE Illustrated Catalog of money-saving values in Millwork and all kinds of beautifying, labor-saving fixtures for the home.

Complete Satisfaction Guaranteed.
O. B. WILLIAMS CO., SASH and DOORS.
1834 First Ave. South Seattle, Wash.

Poultrying Perils

IT IS sheer folly to believe that every one can succeed in the poultry industry, as it requires some liking for the work to be successful and it should be recognized that poultry farming is a business and requires time, close application and perseverance.

Persons starting out to secure results from poultry should realize that it is a business of infinite detail; that it requires attention every day in the year—Sundays and holidays are not recognized by the industrious hen and she must be fed and cared for on those days as well as others.

Beginners also have to learn, usually by costly experience, that a hen is not always a laying hen, hence one must buy chicks or stock from known flocks of good producers and even then these birds must be handled and fed properly if they are to make good layers.

Above all do not delude yourself in thinking that the poultry industry is one in which you can embark without a sufficient working capital for while it is true that the income from poultry is spread over more months in the year than most agricultural pursuits it also is true that your feeding cost goes on constantly and to a considerable extent regardless of production.

Let us one and all do what we can to combat the unwarranted claims and promises of the unscrupulous who are only interested in unloading cheaply acquired land at a profit of [illegible] proportions, regardless of [illegible] or fail[illegible] of those who [illegible] in their advertisements. Co[illegible] [illegible] Poultry Producers of Southern California.

Practical POULTRY Pointers

By W. J. DRYDEN

NO DANGER OF OVERPRODU[illegible]TION?—From 1910 to 19[illegible] [illegible] population of California increased [illegible] than 44 per cent while the number [illegible] chickens in the State increased [illegible] more than 30 per cent. This is a[illegible] reason why there is no danger of [illegible] production. On every hand w[illegible] the question, "When will the poul[illegible] industry reach its breaking point?" [illegible] is doubtful if this or the next [illegible] tion will see that time and [illegible] the wisdom of saying this point [illegible] ever be reached.

GREEN FEED ABSOLUTELY [illegible]SENTIAL—A poultry farm [illegible] not be operated successfully wh[illegible] green feed is not available. No [illegible] of the hen's ration is more import[illegible] than greens, but despite this w[illegible] almost every day of some poultrym[illegible] who is not feeding greens.

He may have run out of mat[illegible] neglected to plant; again, short[illegible] water may be the reason. In n[illegible] such cases, however the poultrym[illegible] does not realize the value of gr[illegible] Few poultrymen, if any, would [illegible] their hens go without feed for ev[illegible] day but many let their hens go wi[illegible] out greens for a week or t[illegible] time.

If one or the other has to be omit[illegible] it would be well in many instan[illegible] feed the greens and hold out on [illegible] grain for a day or two. Hens [illegible] young stock are equally in need [illegible] green provender.

HOME MIXED VS. COMMERC[illegible] FEEDS—Poultrymen often in[illegible] as to the cost of home-mixed [illegible] compared to commercial feeds. T[illegible] is no doubt that the large comme[illegible] poultryman or breeder can mix [illegible] or scratch at a great saving [illegible] danger is that unless he knows [illegible] to balance the ration he may n[illegible] one as good as the commercial [illegible] ture. Another advantage of m[illegible] one's own feed is that it can be cha[illegible] from time to time as conditions [illegible] rant with little trouble.

If the poultryman has the [illegible] and can buy when feed is cheap [illegible] is no doubt but what he can [illegible] money on the deal. But for th[illegible] ducer who does not know t[illegible] of the various grains and th[illegible] products, the loss due to i[illegible] would be greater than the [illegible] the feed.

TIME TO SEPARATE COCKE[illegible]—As soon as the cockere[illegible] the age when they begin to [illegible] is well that they be separated [illegible] ing to size. Once a cockerel h[illegible] whipped it is very doubtful if [illegible] ever make a good breeder [illegible] chances are that he will [illegible] lose his spirit and be w[illegible] cocks properly trained m[illegible] some of the fighting. D[illegible] h[illegible] trained for this work. S[illegible] cording to size will do abou[illegible] as anything else to pre[illegible] among the combatants.

EXAMINE EACH PULLET CA[illegible]FULLY—One poor-lookin[illegible] will spoil the looks of the entir[illegible] When the pullets are culled [illegible] rated from the cockerels it [illegible] examine each bird. The be[illegible] to place them in a crate in [illegible] their form may be noted an[illegible] tails and other defects d[illegible] birds with physical defe[illegible] into good laying hens.

IS MALE RESPONSIBLE [illegible] HEAVY LAYING?—S[illegible] leading poultry au[illegible] that it is the m[illegible] that tr[illegible] egg-laying c[illegible] This has not been [illegible] may be a question [illegible] it is of enough importance [illegible] consider sec[illegible] bet[illegible] the flock.

INDICATE BROODY HE[illegible] the broody hens of [illegible] type in order that you [illegible] from them next year. S[illegible] herit their broodiness [illegible] transmit it.

A LITTLE CULLING MAKE[illegible] DIFFERENCE—[illegible]

Likes Cover Crops

[P]URCHASING a run-down 20 acre ranch near Corning (Tehama county) in 1918, Dr. J. W. Hardin pro- the first season but 10 tons of fruit from an 11-acre prune or- on the property.

From this same acreage he has since as high as 100 tons, with a of 16, 26 and 56 tons respectively three other seasons.

How was the rejuvenation accom- ? The owner re-leveled and ir- the orchard, tried to start a crop and failed; then gave the a good application of manure, again and succeeded. He has growing cover crops ever since.

SMALLER CROPS PREFERRED

The 1924 crop is estimated at 70 per of last year's, which is considered able as the fruit sizes up hetter with a beavy crop. The 100-ton ran ahout "72s," while with fa- le weather the smaller crop of year is expected to make "60s." ed spider has been the only serious . Some years it has done no harm, when it has been severe, control sures have not given satisfaction and a good many, official and unof- al have been tried.

The cover crop, grown with irriga- , has been probably the biggest aid orchard improvement. Melilotus is eferred.

The ground is prepared and planted the fall and furrowed for complete tion so that the land can be wet rly at any time. The crop then plowed under late from April 1 to 15.

IRRIGATION EASILY CONTROLLED

a wet spring, "all right"; in a dry the land is irrigated so that the r crop is turned under with the in exactly the right shape. In a year it will almost hide a trac- . This year it required five discings t it cut up and mixed with the

Hardin now farms 40 acres. He two pumping plants connected one pipe line and so directs his anywhere at any time. The ps stand in four-foot pits and the water at less than 20 feet the surface.

A variety of fruits are grown, but and Sevillano olives are most f table. New plantings on the have been restricted to these —TULARE FARMER.

Deep Well Development

(Continued From Page Two)

desert land. Three sections have converted into small, irrigated devoted to general farming. 60 acre ranch has an alfalfa small bungalow, outbuildings, orchard and other things neces- to make a modest but comfortable home.

Water for irrigation is supplied from deep well on each section. The wells 1700 to 1800 feet deep and each 1250 gallons per minute, which sufficient to cover seven acres six deep every 24 hours.

the Boston and Kings Land s are amply financed and are position to carry on to successful tion the development work in they are engaged.

Peckett, an experienced dairy- and part owner of a creamery at , recently bought a large tract ated land from the Kings y and planted 100 acres of

great advantage of deep well as practiced on the west side there is no trouble with weed which often is carried onto land the ditches," points out Wallace Kings County farm adviser. is so pure it can be used k and domestic purposes. It ys on tap, requiring only the of a switch to send it through d pipes onto the thirsty ere is no danger of malaria with canals and ditches." the Old Timer seeing how while desert is being made to the rose whittles reflec- remarks, "Who'd a' thought

FOR WOMEN ONLY

y one ORCHARD and of special in- Mrs. Temple's Flowers." Henceforth, and problems will receive n- h. al, ch "THE future

HOME FARM HAPPENINGS

By ONE OF US

PRUNES AND PRUNES—AND PRUNES—There is always a big difference in prunes; this year it will be more marked than usual. There will be big, fat, juicy, meaty prunes from the good trees on good land where plenty of water for irrigation is available.

W. S. GUILFORD

Then there will be small "skin and pit" marbles of prunes from dry orchards; for the dry orchards will be drier than ever all over the State. Small, miserable prunes do the business a lot of harm—more than most folks realize. Any one who eats a good prune is a customer for more. We cannot blame a person who is served an order of poor prunes for never ordering them again!

A COW IN THE RIVER—A big shorthorn cow—close to calving—fell in the river one day last week. She was grazing in the brush along a steep bank in a field that she had never been in before, slipped off and was in. She got on a little bar where she could keep her head out of water, but could not get up the bank. When discovered, evidently she had been in the water for several hours.

The Sacramento Navigation Company steamer Red Bluff was tied up at the Butte City warehouse, up stream about half a mile. Captain Eddie Rogers promptly responded to the appeal for help, came down stream with the steamer and got a skiff overboard.

John got a rope around the cow's neck and held her head up behind the small boat while two men rowed up stream to a shallow bar. The cow swam along behind and when she got footing staggered up on the bar where she stood shivering in the sun for half an hour before she started to graze.

EVEN TEMPER GETS BUSINESS—It is a common occurence for river steamboat men to help out ranchers in this and many other ways. A story is told of the late Captain Thomas Dwyer, one of the founders of the Sacramento Navigation Company and father of W. P. Dwyer, who is now president of the company.

As he was coming down stream one day with a steamer and three loaded barges in tow, a farmer along the bank hailed the captain and signaled for him to stop. It is quite a job to stop a boat with a string of barges and tie up to the bank, but the captain did this, got a gangplank down, and went ashore.

"What is the correct time," asked the farmer a question that could have been asked and answered while the boat was in motion.

Captain Dwyer told him and, instead of getting angry, as he was clearly entitled to do, talked with the farmer for half an hour about his crops and other affairs, and wound up by engaging to haul his grain crop, a considerable tonnage.

LOTS OF WATER IN GLENN AND COLUSA There is lots of irrigation water this season in Glenn, Colusa and other Sacramento Valley counties and it is being appreciated as it never was before.

"Old timers"—sheep men and others—who have never been in sympathy with irrigation and have opposed every move to bond their land for irrigation improvements, are willing to admit that water is worth more than land this year.

Several thousand acres of old rice land is being irrigated for sheep and cattle feed and hundreds of acres of grain have been watered. Orchards have come in for a liberal share. Many people from less well watered sections are being attracted to the Sacramento Valley

GOOD WALNUT CROP PROMISED—There is a good crop of walnuts in our section and they have been "sizing up" very fast. The acreage is being increased gradually.

Some black nuts were planted along roadsides and in corners each year, to be grafted later, and some grafted trees are put in orchard form occasionally.

A W Lisville has a beautiful young orchard planted last year Stuart B. Garbutt is more than busy each spring grafting walnut trees on his own and neighbors' farms, and each fall with putting in buds. Our English walnut output promises to reach a considerable tonnage in a few years.

BOYS HANDLE STOCK—A good, active boy with a pony is almost as good as a man at working stock; in some ways is better than many men.

Bill and Tom, 12 and 10 years old, have been helping us drive in cattle, tattoo calves, horn-brand older cattle, mark lambs, take out foxtail beards, dip hogs and do other jobs. They are quick and active, "use their heads" and are the best kind of help. A boy on a Shetland pony can get through brush that will stop a man on a big horse.

A HANDY BRIDLE—Richard, eight years old, who is one of our best pony breakers, has a new bridle that is very handy. It is made in such a way that it can be quickly adjusted. Instead of having a lot of buckles and loops, it has a straight strap with plenty of holes in it on one side. On the other side there is a shorter strap with a buckle in the center. In a few seconds this can be made to fit a big horse or a Shetland pony.

Richard is such a good rider that he does not need to bother with brow bands and throat latches. He rides his ponies bareback like an Indian.

BURNING FOXTAIL—John has had pretty good luck this season burning some patches of foxtail; others "not so good." We are reminded again that there is an opportunity for some smart inventor to make himself famous by devising a simple, practical burner.

We have to examine the lambs every day or two now. They get foxtail beards not only in their eyes, but also under their tails and all over their bodies.

Pigs are almost as susceptible. It seems as though a young pig will deliberately stick his eyes right into a patch of foxtail!

PIGEONS AND DISEASE An effort is being made to kill all the pigeons on the place. Bill and Tom have been shooting them with their little 410-gauge shotguns.

The foot-and-mouth disease outbreak is a good distance away from us yet, but we want to reduce the chance of infection to a minimum. Pigeons sometimes travel a long distance.

A pigeon that feeds one day in an infected barnyard could easily bring germs on its feet to our place. Besides that pigeons are of no use to us and are a nuisance around the barns. They are all right in their place, penned up in the commercial pigeon lofts.

RICE FARMERS, ATTENTION!—Every once-in-a-while some rice mill man or representative of the rice growers' association calls attention to the fact that local consumption of rice is much less than it should be. They say more rice should be used in the sections where it is grown.

Rice is a grain that keeps well and can be used in place of potatoes when the latter vegetable is low in quality and high in price.

One reason why more rice is not used is because it is a gluey, sticky, unsavory mess as it is ordinarily cooked. Peter Anderson, a cook who has had experience all over the world, has a system for cooking rice that makes it a delicacy. He washes it first, then puts plenty of cold water over it in a cooking vessel and puts it in the oven.

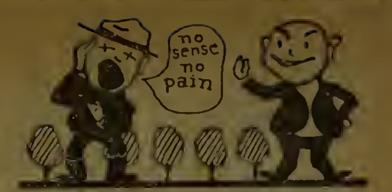
When it is nearly done, he takes it out and washes it with cold water through a fine strainer, then puts it back in the oven with plenty of water and finishes cooking it in the oven. The water boils freely. The vessel it is cooked in is covered. The rice is never stirred.

It takes about fifteen or twenty minutes to cook after it comes to a boil. Every kernel of rice is separate. Rice like this is fine with meat gravy and is wonderful in pudding.

A DRY YEAR, BUT—"It is a dry year—but Frank McKevitt tells me that as many cars of fruit will be shipped this year as in 1923," says George W. Peltier in a clever advertisement of his bank in the Sacramento papers.

No matter what the conditions or predictions, the Sacramento Valley can always be depended on to produce a satisfactory tonnage of agricultural crops.

Every spring failures of certain crops in some districts are reported. As the season progresses more fruit and more grain develop from somewhere and by fall everything generally comes out all right!



THE "GREEN" HAND

(He took a correspondence course in agriculture)

The Boss—"So you want to work in the orchard, eh? Do you think you'd recognize the pear blight if you saw it?"

His Nibbs—"Oh, yes; I can tell it by the color of it's wings!"

A SALE of Genuine Hand Beaded TUSSAH SILK Dresses $3.98

BEAUTIFULLY HAND BEADED

Yes, we mean it, the price is only $3.98! Undoubtedly the biggest bargain sensation in years! A bewitchingly beautiful new style genuine Tussah Silk Dress, richly beaded and elegantly finished in every way. Most amazing offer ever made—don't miss it! Be quick! They will go fast!

Send No Money!

Richly made of fine quality genuine Tussah Silk, soft and shimmering—an ideal material. A striking feature is the elaborate beading—pretty bugle beads in rich color tones set in a most tasteful and elegant design. Self material narrow sash. Fashionable kimono length sleeves with slashed cuffs. Round neck; tailoring throughout is perfect, you will be delighted with the workmanship. The style is one-piece, becoming to all ages and figures.

HURRY! your order—no money now. Pay only on arrival special sale price $3.98 and postage. If after try-on you don't think it the biggest bargain of your life, your money back.

COLORS—Navy Blue, Tan, Natural, Brown or Black. SIZES—Women's 32 to 46 bust: Misses' 14 to 22 years.

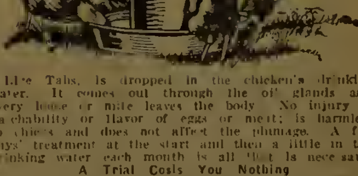
A Style Fresh From Paris

Money Back Guaranteed

INTERNATIONAL MAIL ORDER CO. Dept. D-1579 Chicago

Mineralized Water Routs Chicken Lice

No dusting or spraying. Birds delouse themselves. Amazing lice remover keeps birds always lice free without the poultry raiser doing any work—simplest, easiest and best method ever discovered.



Lice Tabs, is dropped in the chicken's drinking water. It comes out through the oil glands and every louse or mite leaves the body. No injury to hatchability or flavor of eggs or meat; is harmless to chicks and does not affect the plumage. A few days' treatment at the start and then a little in the drinking water each month is all that is necessary.

A Trial Costs You Nothing

To introduce Lice Tabs the laboratory is making a special guarantee offer of two large, double strength $1.00 packages for the price of one. Just send your name and address, and pay postman $1.00 and postage on delivery. If after 30 days' trial you are not absolutely satisfied, your money back quick. Write today to Lice Tab Laboratories, Dept 143, 845 S. Wabash Ave., Chicago.

200 SHEETS AND 100 ENVELOPES $1

3 lines printed with name and address, or Monogram in an exclusive design, in rich dark blue ink. On Good White Bond. Size 6x7, envelopes to match. 100 Correspondence Cards, printed, size 3½x6, with envelopes, $1.50. 100 Double Sheets and 100 envelopes, $1.50. Money refunded if not pleased. An Ideal gift for friends. Write plainly. 50 Paneled Cards with name, 50c. Additional lines, 15c each. Remit with order.

A. J. Baumann, 263 Market St., San Francisco, Calif.

MONEY IN GRAIN

$12.50 buys guarantee option on 10,000 bushels of wheat or corn. *No Further Risk.* A movement of 5c from option price gives you an opportunity to take $500; 4c, $400; 3c, $300, etc. WRITE TODAY FOR PARTICULARS and FREE MARKET LETTER.

Investors Daily Guide, S. W. Branch, Dept. M-33 1016 Baltimore Ave., Kansas City, Mo.

"I pay the Freight" Red Top Steel Fence Posts and Farm Fencing Harry Baylies Inc

FREE FENCE Catalog

431 Finance Bldg Angeles 417 Dalziel Bldg. Oakland

THE "GREEN" HAND
(He took a correspondence course in agriculture)

The Boss—"Have you ever had any dairy experience?"

His Nibbs—"Oh, yes. I drove a milk wagon once!"

Co-operative Memberships

NEARLY 700,000 farmers comprise the membership of forty-three farmer-controlled associations marketing tobacco, cotton, grain and rice, according to reports to the U. S. Department of Agriculture.

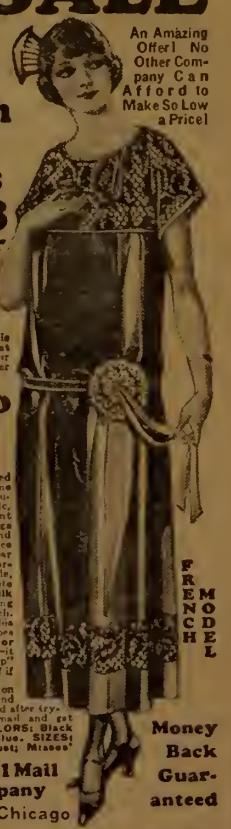
Seven tobacco associations lead with a total of 288,500 members; 14 cotton associations have over 250,000 members; 18 grain marketing associations have over 137,000 members and 4 rice marketing associations have over 4000 members.

One tobacco organization alone has more than 102,000 members, the second largest in size having about 95,000 members. The largest membership in any one cotton organization is 53,000. One grain marketing organization reports 63,000 members and the largest rice association 1300 members.

BARGAIN SALE

Tussah Silk—Spanish Lace Dresses $3.98

An Amazing Offer! No Other Company Can Afford to Make So Low a Price!



Looks too good to be true—but we mean it! This exquisite creation, sparkling with all the rich beauty and alluring charm of a Parisian gowns is offered you in this sale at only $3.98! Risk your request—you may never see this offer again!

Send No Money With Order

Body of dress fashioned from soft, sheer, genuine Tussah Silk—a most beautiful material. The wide, generous yoke is of elegant silk Spanish lace, the rage of the hour! A wide band of the same beauteous lace is also all around skirt near bottom. At waist is new self material girdle, with rich rosette of white lace run through with silk ribbon drop in contrasting color—a clever touch. Newest wing sleeves. This bewitching gown drapes beautifully. Suitable for day or evening wear—it will be your "dress up" frock. A saving of half if ordered now.

No Money Now—pay on arrival only $3.98 and postage. If not delighted after trying on, return by insured mail and get your money back. COLORS: Black or Brown or Navy Blue. SIZES: Women's 32 to 46 bust; Misses' 14 to 22 years.

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Dept. W-1479, Chicago

Lessons From Foot-and-Mouth Epidemic

Ultimate Reaction May Benefit Dairy Industry—Regulatory Measures Needed—A Costly but Not Disastrous Experience

THE following optimistic statement concerning the foot-and-mouth disease was received from J. Detter, California Dairy Council representative and an officer of the Citizens' Emergency Committee, which was organized soon after the first outbreak:

Officials realize it will be some weeks yet before it is known positively that all danger of new infection is past, and many more weeks before normal conditions will be resumed.

The first outbreak of the disease occurred during the first week in February; it spread to nearly all the counties about San Francisco Bay District, and caused immense loss in dairy cows and hogs.

From there it jumped to Merced County; but before it was discovered there some cattle were shipped from Merced to Los Angeles, and the disease broke out in the packing house district in Vernon two days after it was discovered in Merced.

The disease has been in sixteen counties of the State, but the outbreaks were confined to a comparatively small territory in each county, so that widespread infection was prevented; it was feared at one time that the dairy industry would be wiped out in the southern part of Los Angeles County, where there are approximately 18,000 dairy cows. However, only a few recent cases have been reported from there, and while there has been a very heavy loss of cattle, it is now hoped that the bulk of them will be saved.

(Written June 1st.)

HEAVY LOSSES CITED

There is no use saying that the loss in dairy cattle is not great, for it is; however, the percentage of loss in dairy cows in the State is quite small and it is possible that in the long run the industry may be benefited, because many dairymen will endeavor to secure a better grade of cows than they formerly kept, and the schooling they have had under close inspection has been a means of teaching many of them better methods of sanitation and prevention of disease.

The approximate number of stock killed in the State to June 1 was as follows, but subject to revision when statistics are available from the State Department of Agriculture: Cattle, 42,874; hogs, 19,196; sheep, 25,660, goats, 476, total, 88,206.

The number of stock in California in the year 1923 as compiled by the Department of Agriculture was as follows: Dairy cows, 664,000; beef cattle, 1,421,000; swine, 834,000; sheep, 450,000 goats, 120,000.

It is thus quite evident that the percentage of loss is comparatively small; however, the economic loss to industry in general because of embargoes to California products has been enormous, and the people of the State should see to it that laws are enacted that will prevent another infection coming into the State.

Ships entering our ports should be rigidly inspected, and the dumping of garbage from them onto our shores strictly prohibited unless thoroughly sterilized.

GARBAGE FEEDING DANGEROUS

The custom of feeding garbage to hogs which are collected in one locality in large numbers, is rather a dangerous one, and it should be done with great care, if allowed to continue at all; it seems to be the general opinion that all garbage should be sterilized before feeding, although it does detract some from its food value according to the people engaged in this practice.

But general safety measures should be enforced even though it may work a little hardship on a few individuals, no special privileges should be granted to any person or persons that may jeopardize the welfare of the public at large.

It is now time for all dairymen to lay plans for better times for we believe better times are near for those interested in the industry.

News recently came to the California Dairy Council offices that the bill creating a Dairy Bureau, which was passed recently by the House of Representatives in Washington, has now been passed unanimously by the Senate, is up to the President for signature and will undoubtedly become a law.

This is cheering news, as it will make the dairy industry independent of the Bureau of Animal Industry, and will enable the former to assume the dignity it deserves.

What Size Belt Pulleys Most Efficient?

A COMMON form job is to belt together two machines or two shafts on the same machine so that the driven one will run at a certain speed.

When two pulleys are belted together and are to turn at definite speeds, the pulley diameters bear the same relation to each other as the speeds; however the smaller pulley runs at the higher rotative speed or revolutions per minute and the larger one at the lower speed.

In catalogs and various kinds of literature are to be found many references to methods of calculating pulley diameters and speeds. Such statements as the following are common: "To find the speed of a driven pulley, multiply the diameter of the driver by the speed of the driver and divide the results by the diameter of the driven."

Diameter of driver multiplied by R.P.M. of driver, divided by diameter of driven, equals R.P.M. of driven.

Again, in semi-technical literature we find: Revolutions per minute of driver, times its diameter, equals revolutions per minute of the driven, times its diameter (RxD equals rxd.) Persons accustomed to using such formulas usually have no difficulty in finding any one quantity when the other three are given, but are lost when confronted with a problem involving two unknowns. For example:

A gas engine that runs 500 R.P.M. is to be belted to a six-inch centrifugal pump that should be run 750 R.P.M. in order to work efficiently. Neither engine nor pump is equipped with pulleys. The engine speed is just two-thirds of the pump speed, or their ratio is as two to three. Therefore, any pair of pulleys the diameters of which are in the same relation and which are suitable for the shaft and belt should give the desired pump speed, provided that the small pulley is put on the pump and the large one on the engine. A list of these might be made as follows:

	Engine	Centrifugal Pump
Speeds or R.P.M.	500	750
Theoretical pul. diam.	3	2
Theoretical pul. diam.	4½	3
Theoretical pul. diam.	6	4
Theoretical pul. diam.	7½	5
Theoretical pul. diam.	9	6
Theoretical pul. diam.	12	8
Theoretical pul. diam.	15	10
Theoretical pul. diem.	18	12
Theoretical pul. diem	19½	13
	21	14

MANY FACTORS CONSIDERED

Such a list, however, tells only a part of the story. Pulleys with some of the diameters given would be classed as odd or special and would be difficult to secure commercially. The small ones would cause a belt to bend too short, causing undue wear and would be impractical. Also the belt on small pulleys probably would not travel fast enough to transmit the full power of the engine. Pulleys too large might run the belt fast enough to cause it to slip due to centrifugal force; that is, the force that throws mud from a rapidly moving wagon or auto wheel or water from a grindstone.

When belts are run 5,000 or [illegible] feet per minute they actually [illegible] cessively due to this cause. [illegible] the large pulleys might be quite [illegible] and occupy too much room. [illegible] fore, price, room, belt speed [illegible] should be considered by all [illegible]

Belt speed may be calculated [illegible] measuring or estimating the [illegible] in feet around a pulley and multiplying it by the revolutions per [illegible] that it would be run. The A[illegible] Society of Agricultural Engineers after a careful study of farm [illegible] problems, decided to recommend [illegible] belts for farm conditions [illegible] 2600 feet or approximately [illegible] mile per minute.

Using this [illegible] find that a 19½-inch pulley on [illegible] engine would give a belt speed [illegible] feet per minute or very close [illegible] recommended. Due to the [illegible] pulley being an odd size [illegible] have to be made specially and [illegible] costly, it would be best to use [illegible] inch pulley on the engine and a [illegible] pulley on the pump. This [illegible] ing, of course, that there [illegible] the particular pump for a [illegible] that size. JAMES K[illegible] of Agricultural Engineering [illegible] sity of California.

Going! Going! Gone!

How many readers remember the old-time auctioneer? Every village, town and city used to boast of the gentleman who cried, Going, going, gone; A few of his most worthy sons still cry out, but classified advertisements have displaced him in most cases.

The Classified Page is the modern auctioneer. If you are the seller it will permit you to offer your goods to 10,000 to one under the old auction sale.

If you are the buyer you may sit at home and select from goods offered many miles away.

Read the classified if you buy! Use the classified if you sell!

Know Your CALIFORNIA

Little Journeys Into Agricultural Districts

[Editor's Note: Brief, intimate glimpses of agricultural conditions in various parts of the State will be published from time to time under this heading. Subjects will be chosen at random without regard to [illegible] to production or agricultural importance. Get acquainted with your California opportunities and delights by accompanying ORCHARD and FARM representatives on these informative "little journeys."]

IMPERIAL VALLEY—IMPERIAL COUNTY

WEBSTER defines "Imperial" as meaning "an article of unusual excellence." This definition may be fittingly applied from an agricultural viewpoint to Imperial County.

A most successful lettuce season has recently closed, with shipments of approximately 9700 carloads. Superior quality and early production have created an ever increasing demand for Imperial Valley lettuce that is best illustrated by increase in shipments during the last few years:

1921, 3684 carloads, 1,178,880 crates.
1922, 4742 carloads, 1,511,440 crates.
1923, 7730 carloads, 2,473,600 crates.
1924, 9486 carloads, 3,035,520 crates.

The harvesting of the lettuce crop is followed in short 30 days by the valley's busiest season, covering a period of from six to eight weeks in harvesting and shipping cantaloupes by the train load. Following are comparative data:

1921, 10,666 carloads.
1922, 12,467 carloads.
1923, 13,056 carloads.
1924, estimated 16,000 carloads.

The peak in cantaloupe shipping was reached in 1922, when 648 cars were iced, loaded with cantaloupes and forwarded within a 24 hour period. This one day's shipment of cantaloupes represents a solid train 5½ miles long, requiring 4536 tons of ice for refrigeration.

The present outlook for a successful cantaloupe season in Imperial Valley is exceptionally good.—JAS. COYLE.

Hop Growing Uncertain

FOR the past two years the crop of hops in the United States, practically all of which are grown on the Pacific Coast, has accounted for about 75,000 bales a year, as against about 340,000 bales grown just prior to prohibition, according to B. C. [illegible] of San Francisco. The crop for 1924 is now expected to be about [illegible] bales, though if weather conditions have been favorable, the crop of 1924 might have run up to 90,000 bales.

The size of the hop crop in [illegible] Germany, Austria, Belgium and [illegible] and the amount of beer consumed in these countries are the controlling factors in the making of a market for the American surplus of hops and belonging to the foreign demand largely depend American hop prices.

The reports from those connected to the size of their own crops are usually given out without the slightest consideration for truth usually [illegible] what they would have the rest of the world believe, according to whether the parties publishing the reports are growers or sellers.

Serving Agriculture With Cream and Sugar

Milk and Sweets Combination Proves Profitable on This Hawaiian Plantation

DAIRIES long have been an adjunct of sugar cane production in Hawaii, but until a few years ago they were operated in a rather haphazard manner in most instances. The plantations rarely ran them at a profit, their main object being the supplying of milk to the laborers. A decisive step in the right direction was taken, however, when The Lihue Plantation Company, Limited, decided to install a modern dairy plant. The interesting story of this undertaking is told briefly in the accompanying article.

THE typical Hawaiian dairy of a few years ago consisted of a number of scrub cows in charge of a cowboy or stableman, which were milked in a yard or shed, the product being delivered in cans from door to door with a mule cart. A few of the plantations had more modern dairies, but they were the exception rather than the rule.

The laborers on the Lihue plantations had been dependent upon small, privately-owned dairies operated by Portuguese, and the supply was neither large nor constant. Sanitary conditions in the old style island dairies usually left much to be desired.

A modern plant in every respect was the keynote of the Lihue program. As soon as the directors of the company voted the necessary funds, everything pertaining to the dairy was studied thoroughly before any decisive steps were taken.

After a careful investigation, it was found the Ayrshire had proved the most successful dairy cow in the semi-tropical climate of the Hawaiian Islands, and this breed was chosen. To start the dairy 40 cows were bought in New York, New Jersey and Pennsylvania, and assembled in New Jersey. From there the herd was shipped to San Francisco by express.

Here the animals were placed upon a steamer and shipped to Honolulu, and thence to the Lihue Plantation, which is located on the island of Kauai, the most northerly of the Hawaiian Group. The entire herd arrived on Kauai in splendid condition in October, 1920, with two more head than they started with in New Jersey, two calves having been born on the trip.

LOCATION CAREFULLY CHOSEN

Realizing that good drainage was one of the essential factors in sanitation, it was decided to locate the dairy on a rather sandy spot near the sea. Another factor in the selection of this location was the fact that there were many acres of pasture covered with native grasses close by, and the entire region was in the path of the prevailing trade winds, insuring an even climate practically the entire year.

The new milking shed followed to the letter, specifications of the Board of Health. A milk room with a modern refrigerating plant was constructed. The equipment of this room consisted of a cooler, connected to the refrigerating system, an automatic bottling and capping machine, a steam sterilizing and bottle washing outfit, and a separator. The dairy was placed under the direction of an experienced manager.

Indicating what steps the company was willing to take in order to make their plant as modern and sanitary as possible, a special cart was built so that the milk could be kept cool during delivery. Small ventilators, similar to those upon a steamer, were placed on the enclosed body of the car facing forward, and the rear door was bored full of small holes, so that when the car was moving, a steady draught of air passed through it where the bottled milk was kept.

One of the outstanding features of this dairy is the fact that molasses, a by-product in the manufacture of sugar, is used as feed for the herd. This molasses must not be confused with the molasses syrup sold in tins—the latter is refined from the former.

Molasses is fed in two different ways. At milking time beet pulp which contains the sweet stuff is given, but the main molasses ration is fed in the roughage, which consists of elephant grass and alfalfa, finely chopped and mixed, to which molasses is added and the entire mass mixed again.

MOLASSES ADDS FLAVOR

With the molasses added it is found that the cows consume every bit of roughage. Molasses also is fed to the herd in the pasture, a large tank having been placed there for this purpose.

Hawaiian plantations have had long experience in feeding molasses to stock; it is mixed with the roughage fed to the mules and horses as well as to the beef and dairy stock.

One of the benefits and important features of feeding molasses to the herd is the wonderful glossy coat it gives the animals, said to be due to the laxative effect of the feed.

Molasses also is fed the calves, but care is taken to prevent overfeeding, for it has a tendency to scour the younger animals. However, no ill effects have been noticed when the calves tend to scour, and cutting the ration immediately stops this trouble.

The Lihue dairy now has been in operation for more than two years and is in first class condition. At present 32 cows are being milked, netting a production of a trifle over 90 gallons a day. This milk is sold to the laborers at cost and is delivered twice daily. Although the dairy is primarily for these workers, surplus milk is sold to other than plantation employees.

It is an interesting fact that with the inauguration of the Lihue Dairy and its successful operation, other plantations that had been operating their dairies in a loose manner saw the benefits of modern methods and instituted many improvements. A great deal of progress has been made, until at the present time there are only a very few isolated instances where the old methods still exist.

This is "Castlemains Kate," one of the outstanding Ayrshires of the Lihue herd. This breed was chosen because of its adaptability to Hawaiian climatic conditions.

Interior of cooling plant. Until this company installed its modern equipment, such conveniences were rarely found on the islands.

A typical pasture scene on the Island of Kauai, showing Ayrshires from Eastern United States making themselves at home in their strange environment.

Few of our continental dairies possess a better-equipped milk room than this Hawaiian Island establishment. Note testing and sterilizing apparatus.

A Kickless Barley

THE farm boy, the hired man, and the farmer himself, for that matter, will rise to a vote of thanks and give three cheers for the scientists of the United States Department of Agriculture when they succeed in developing on a commercial scale a variety of barley that can be "wallowed" in with impunity on a hot summer day without wearing a cast-iron shirt and overalls.

The saw-edged beards of the many varieties of high-yielding barleys have been instrumental in keeping down the acreage of barley, and only its ability to produce a high acre yield in pounds of feed has maintained the present acreage.

Attempts by the agronomist in charge of barley investigations for the department to develop a smooth-awned variety from the rough-awned Manchuria, which is a popular high-yielding variety, have resulted in considerable progress. Enough seed for general distribution is not yet available, however.

Specimens of this smooth-awned barley are to be seen in the office of Cereal Investigations of the department. These awns are so smooth that they may be pulled across the face in either direction without any roughness being apparent except at the tip.

In these investigations it was found unwise to eliminate the awns entirely because they serve a definite purpose. When they are removed from the growing head by clipping, the ash is deposited in the rachis, or small stem to which the kernel is attached, making it more brittle and allowing the grain to shatter easily.

The awns, it seems, act as a sort of safety valve or storehouse for this excess material. It has been found more practicable to develop a variety with a smooth awn than to remove it entirely.

Smooth-awned barleys are still in the experimental stage. Several high-yielding strains adapted to different climatic conditions are ready for increase to larger plats and field culture. Whether they can compete with the rough-awned varieties remains to be determined.

SUBSTANTIAL *farm construction*

Good Buildings Pay Dividends

SINCE farming is largely a mechanical operation, suitable buildings are necessary. The average farm is woefully short on this character of equipment, especially buildings for housing implements and machinery. The splendid structures on the Straloch farm, illustrated at center below, represent the last word in the housing of agricultural machinery.

Almost the entire end of the larger building can be opened to make entrance and exit as easy as possible. The long, narrow building, shown at the right, extends around the center shed on three sides. Numerous sliding doors render it possible to put away or take out implements quickly.

Many farms are veritable factories, processing as well as producing much material for dealers and consumers. By the use of packing houses and dehydrators the farmer saves one middleman's profit and reduces his overhead. Following the lead of apple men, who long have dried fruit artificially, prune, raisin, peach and walnut growers are putting in modern dehydrators which are proving great savers of both time and labor.

Recreation buildings and swimming pools evidence the effort of modern agriculturists to relieve the monotony of farm life, promote sociability and place rural communities on par with city districts. This is one way to solve the hired help problem which urban competition is rendering more and more difficult. The country must keep pace with the city or lose out in the game of life.

Permanent quarters are being built to accommodate Farm Bureau egg laying contests, capitalizing the spirit of competition which is one of the cornerstones supporting agricultural fairs, fruit displays and stock shows. This enterprise is proving a valuable spoke in the wheel of poultry progress.

This commodious packing house is located on the 100-acre apple orchard of Carrol Rodgers, near Watsonville. Twenty acres yielded 20 carloads.

"Competition is the life of trade"—in eggs, believe the Petaluma poultrymen who are supporting egg-laying contests. In recent years there has been a consistent increase in egg yields in this prosperous district.

The screened compartment opening into his milk house, shown above, is used by Mr. Zumstein, Imperial Valley dairyman, for "sunning" and airing milk utensils. Sanitation is essential to dairy success.

This spacious, well-built implement and machine house on the Straloch Farm, near Davis, is a long step in advance of the ordinary farm tool shed.

The Azusa Foothill Orchard Company built for its employees this beautiful club house. In the foreground is a large swimming pool.

A big apple drier (shown above) takes care of the cull fruit from the Rodgers orchard in the Pajaro Valley. In "off" years the profit of a big fruit farm is tied up in by-products. The output of a modern dehydrator like this is vastly superior to the old-fashioned, unsanitary dried apples.

ORCHARD and FARM

JUNE 29, 1924

Profit in Vegetables—But It's Not Easy Money!

Grower Entertains No Delusions

IF YOU'RE not afraid of work, it is possible to make real money at truck farming in California; this is evidenced by many examples in different parts of the State. But probably no type of intensive agriculture calls for closer supervision or more sustained effort than commercial vegetable growing. "Don't give up—even if you give out," should be the truck farmer's motto, according to this experienced and successful producer.—*The Editor.*

By ALBERT J. MASON

TAKE your cue from the word QUALITY—so says J. F. Swoboda, San Diego County truck farmer, who in seven years has paid for 40 acres of high priced land and crowned the "home twenty" with a $10,000 house—not to mention the family car and other conveniences. Part of his farm is valued at $1500 an acre.

But it is only by having set a high standard and working almost day and night to maintain it, that Swoboda has achieved his enviable record "Too many vegetable growers," he says, "make the mistake of shipping an occasional lot of low-quality stuff, improperly graded, hoping to 'get by', with the result they lose the confidence of the buyers. Every shipment that leaves this ranch is conscientiously graded and packed; and the part that is marked 'Number One' really justifies the title. Our object, of course, is to grow as large a percentage of 'Number One' stuff as possible."

Swoboda delivers practically all his produce to a San Diego commission firm which has handled his crops for several years. Although he must take chances on market fluctuations, he is in better position than the itinerant grower with no established distributing connection. He has the confidence of his dealer, who knows in advance about what shipments to expect and who has worked up a special demand for Swoboda's quality crops. Frequently Swoboda-grown produce has brought a good price in Los Angeles when similar vegetables grown near at hand, went begging.

"I nearly always ship on consignment," says this business-like truck farmer, "because then I have an opportunity to take advantage of favorable market conditions; whereas if asked to buy for cash, the dealer—in order to protest himself—usually gives less than the market justifies."

DIVERSITY OF CROPS

Swoboda specializes on sweet potatoes, Irish potatoes, sweet corn, cabbage, lettuce and cauliflower, often raising three crops on one tract of land in one year. For example, early Irish potatoes are planted in January or early February and are dug by May first. Then sweet corn is raised for the summer market, usually being sold by late July or early August, and finally lettuce or cabbage is carried into the winter, being marketed at fancy prices before and during the holidays.

It will be seen that location and climate have had much to do with his success. The ranch, situated in the beautiful El Cajon Valley, less than 20 miles from San Diego, approaches the ideal for intensive farming. In addition to the 20-acre "home place," which comprises some of the best soil in the county (Foster loam of erosive origin), Swoboda farms 20 acres a short distance away nearer the foothills, and several smaller tracts nearby. The winter months as a rule are just right for the production of hardier crops, while the summer months, although warm enough for rapid plant growth, are tempered by ocean breezes.

The water factor, too, is an important one. Swoboda's irrigation problems have been solved by the installation of cement pipe lines, fed by two comparatively shallow wells from which the water is pumped by electric power.

One of the wells is 95 feet deep; the other only 88 feet, but the flow of water is augmented by the construction of tunnels and laterals radiating from the bottom of the main shafts. The latter penetrate a hard granite stratum. One well is connected with 135 feet of 4x6-foot tunnel and 420 feet of laterals—drilled, dug and blasted through this cement-like material; the other well has 60 feet of large tunnels.

During the summer season both pumps run night and day, and according to the owner there never has been any diminution of flow. The power costs about 6 cents per 1000 cubic feet of water pumped, making the wells less expensive than a gravity system which supplies water for the upper ranch. As to time of irrigation, Swoboda has no definite rule. He judges entirely by the condition of the soil, but aims to keep the moisture as uniform as possible.

With the water factor, then, we have covered four essentials to success—hard work, good soil, careful grading and adequate facilities for irrigation. But there are still other things almost equally as important in truck farming. One of these is fertilization.

Swoboda "works" his soil very hard, and although he practices rotation, there would be serious depletion of fertility if he did not replenish the plant food. He prefers poultry manure to any other soil amendment. Last year this grower bought from neighboring egg farmers and spread broadcast over his fields more than 100 tons of manure at $10 a ton.

CULTIVATION VERY IMPORTANT

Next in importance among cultural operations comes cultivation. Much of his soil is of the natural truck garden type; that is, it is deep and fine, and pulverizes easily. Swoboda never gives it an opportunity to become baked and lumpy. Before planting, the earth is "fined" with a plank drag, suitably weighted; and irrigation invariably is followed by cultivation as soon as the soil is dry enough to work.

Even in growing sweet potatoes, for which Swoboda is famous, cultivation is carried almost to extremes as compared to the general practice. The cultivator is equipped with special hooks back of the shovels, to raise the vines, so they are never allowed to take root in the ditches, and thus it is possible to continue cultivation after the period when the vines normally would present a tangled mass entirely covering the ground.

By the way, Swoboda has some ideas of his own in regard to growing luscious "sweets"—the kind that command highest prices and melt in the mouth of the pleased consumer. The secret lies largely in using the right kind of plants.

This producer starts his plants under glass February first or earlier. He considers cuttings far superior to rooted plants and puts them out before runners have had time to develop. He starts to set the cuttings in the field about March 20.

With a marker small furrows are made 30 inches apart, and the cuttings are set 16 inches apart in the rows. Water is run through the furrows while the plants are being set out and is turned off as soon as the ground is well soaked. The cuttings are set at the edge of the ridge, almost in the furrow. Cultivation follows before the next irrigation serving also to throw up the dirt along the rows of plants.

SOME ENORMOUS YIELDS

Swoboda lays special emphasis upon the importance of having strong, vigorous plants to start with—in raising not only sweet potatoes, but other vegetables as well. "How can we expect the mature plant to be any stronger or better than the stock from which it is grown?" is his logical query.

Now, let us see what results attend the right combination of all these factors. What yields are secured, what returns per acre? This highly successful vegetable specialist has achieved some remarkable results. Qualifying with the statement that these are not average, but extraordinary returns, he cites yields of 250 sacks (of 115 to 120 pounds) per acre of early Irish potatoes, 20 tons of sweet spuds, and 36 tons of cabbage. During the war he secured very high prices for all his produce. Now, of course, the market is more erratic.

"For this reason," he points out "I do not agree with those who maintain the vegetable grower should concentrate on one crop. In diversity there is safety. I have never yet struck a year when prices were low on ALL my produce. It would be easier and less expensive, to be sure, if I should devote my entire acreage to raising one thing and do nothing else the balance of the year. But I gave up the idea of having an easy *(Continued on Page 9)*

The Swoboda home, surrounded by shade trees, commands an attractive view of the valley. Part of the young orchard is seen in the foreground.

Photographed early in April, this field of grain indicates the fertility of the soil and the climatic advantages of the El Cajon Valley.

Most of the cultivating is done with one horse. This corn will produce roasting ears by July.

Mr. Swoboda setting out sweet potato plants. The land is irrigated immediately before and during this process and the plants are set at the edge of the furrow.

An early spring view of a potato field on the Swoboda farm. The wooden trough is used as a movable flume for irrigating. It is equipped with metal outlets.

ORCHARD *and* FARM

THE CALIFORNIA AGRICULTURAL WEEKLY

JUNE 29, 1924

What About Cash F.O.B. Auction Selling Plan?

New Marketing Method Gives Grower Cash Returns Two Days After Shipment—Transfers Distribution From Producer to Dealer

By O. H. BARNHILL

WHO started the f.o.b auction system of selling fruit? David Kellerman California grape grower and former Pittsburg fruit broker.

"In 1922 I lost $500,000 in three weeks, as a result of using existing marketing methods in disposing of my crop" relates Kellerman. "Then I realized the necessity of radical changes in present selling plans. Last June I started an f. o. b. auction. In six months I sold 7000 cars of California farm produce, mostly grapes, which shows what growers think of the new method."

O H BARNHILL

Farmers realize that consigning their crop individually to commission merchants or distant auction markets is an illogical marketing method, wrong in principle, because it gives the agent or buyer every advantage. When a perishable product is placed in the hands of a distant agent the latter has the whip hand, being bound by no legal agreement. He sells for whatever price he pleases, or whatever dealers agree upon, making terms to suit.

Juggling of accounts, false representations regarding condition of stock on arrival and other abuses inherent in the consignment system have caused more dissatisfaction among growers than anything else connected with farm crop marketing. Lawsuits, in which the Federal Government often takes a hand are common in uncovering dishonesty incompetency and other reprehensible features of the commission business.

CROP INSPECTION HELPS

"Yes, but what are we going to do about it?" objects the grower. "We know the dealers should come to us, as they come to other producers, and pay us for our goods as soon as they are loaded into cars. We do all the business we can on this cash f.o.b. basis, but are able to dispose of only a small portion of our crop this way. What shall we do with the remainder? In many cases consignment is the only way out."

Kellerman saw in California's system of farm produce inspection an opportunity to sell everything on an f. o. b. basis, since it enables distant buyers to make intelligent wire purchases without personally inspecting the product. True, as objectors point out, it is impossible to determine from inspectors' certificates the precise quality of a car's contents. This slight buyer's risk, however, can be largely eliminated by the use of standard grades and brands and by dealing with organizations and large individual producers with whose stock and methods the trade is familiar.

It also is a fact that the buyer is bound to discount prices a little in order to take care of the shipping risks which he assumes and the possibility of goods arriving in poor condition. If, however the grower assumes this risk, as in consignment shipping his losses will average about as much as the price discount made by the buyer when the latter takes the risk.

HOW THE SYSTEM WORKS

[illegible] of holding a car loaded with [illegible] at point of origin until de[illegible] tion [illegible] be wired to distant mar[illegible] [illegible] received the car is started [illegible] an undetermined destination [illegible] as [illegible] Fortunately for this [illegible] thousand miles of mountains [illegible] intervene between Califor[illegible] and her [illegible] large consuming [illegible] This affords ample time for [illegible] of [illegible] car's contents to be [illegible] the big Eastern markets. [illegible] to be [illegible] of same and [illegible] purchase to put [illegible]

[illegible] is sent out the [illegible] sale [illegible] day price and [illegible] immediately after [illegible] point of [illegible] check [illegible] at once [illegible] this [illegible] of the [illegible] [illegible] that the ship[illegible] days after loading a car just what his stuff is bringing, which enables the grower or organization to regulate shipments accordingly.

The central office of the National F. O. B. Auction Company is at Pittsburg. Branch offices are maintained in New York, Boston, Cleveland, St. Louis, Detroit, Chicago and several other large fruit markets. The California office is at Los Angeles. Last November 157 cars of California fruits and vegetables were sold in one afternoon. As critics point out, the system should be so arranged that dealers in every carlot market have an equal opportunity to bid on offerings.

MISS CALIFORNIA ASKS:

"Shall I Try the New Selling System?"

Farmers all over the Pacific West are watching with intense interest California's marketing innovation—making f.o.b. cash sales while produce is rolling towards distant markets. Read what friends and foes have to say about the system.

SECOND COMPANY ORGANIZED

A few weeks ago L. K. Small and ten other Los Angeles fruit and vegetable dealers organized the Growers and Shippers' F. O. B. Auction Company, with a central sales office in Chicago. A large quantity of cantaloupes and other California products already have been sold, in many cases netting growers double the money received from consignment and other sales-on-arrival. From present orders it is expected that 5000 cars will be handled this season.

Managers of co-operative marketing associations, together with representatives of the Farm Bureau and Extension Service, generally regard with disfavor the new selling system, although some admit it may be useful under certain conditions. The chief objection is that it transfers distribution from shipper to buyer, but supporters of the system contend that this is an improvement on the present method.

Supplying Eastern markets from across the continent is largely a matter of guesswork," points out an experienced dealer "A cash buyer, however, is not apt to take many chances with a car in which he has his money invested, knowing in advance where he is going to dispose of the goods before he places a cash bid for them."

The other chief objection is that the new plan takes California products out of the hands of growers and shippers and turns them over to brokers and speculators When, however, fruits or vegetables are shipped across the continent and consigned to commission merchants and Eastern auctions, brokers and speculators have an even better opportunity, it is claimed to manipulate prices since they have the goods in their own hands before putting their money into them.

Considerable apprehension is felt in some quarters that f. o. b auction selling will wreck co-operative marketing organizations. If this should happen it would be a real calamity, not only to growers, but to the State in general. ORCHARD and FARM stands squarely behind farmers' selling associations, realizing they have been of incalculable benefit both to producers and consumers. The purpose of the present discussion is to bring to light the advantages and disadvantages of a new marketing method, in order to enable growers and shippers intelligently to judge its merits and drawbacks. With this end in view the following opinions from well-known marketing authorities have been obtained by the editor of ORCHARD and FARM with permission to publish.

A. C. HARDISON

President California Farm Bureau Federation

"I consider f. o. b. auction system of marketing a false hope, a delusion. It has been tried once by fruit growers and proved unsatisfactory. Too many agricultural producers are unwilling to accept the unfortunate experience of others as warnings, but must themselves learn by the very expensive method of having the experience themselves."

RALPH P. MERRITT

President and Managing Director Sun Maid Raisin Growers

"The f. o. b. auction is a comparatively new method of distribution and has both advantages and objectionable features. Advantages lie in automatic distribution, cash returns and accurate knowledge of demand as against supply. Objections are to be found in having f. o. b. sales divided among various private interests and in possible lessened returns to the grower, due to passing on to the buyer the risks of shipment and delivery and—most particularly—giving the power of ultimate distribution to speculative brokers in Eastern cities.

"Some dealers are of the opinion that the clearing house plan of distribution cannot be made to tie with f. o. b. selling The Sun Maid committee, which has been considering this subject, takes the position that all types of distribution could be brought into the clearing house plan and that f o b. sales may be of importance to the administration of a clearing house by indicating prices obtained on that day, types of grapes moved and points of apparent distribution.

"An f o. b. plan to be successful and of permanent advantage to the purchaser must of necessity take into consideration complete offerings from California and provide to all points of carload consumption in the United States and Canada an opportunity to purchase. At present no such opportunity exists.

"The salvation of the grape industry of California depends upon control of distribution from the point of origin, which is California."

C. P. EARLY

Manager Mutual Orange Distributors, Redlands

"We have tried, to some extent, f. o. b. auction selling and other marketing methods. We always are open to conviction and are not averse to trying any selling plan which may prove beneficial to citrus growers. Some of our f. o. b. auction sales were entirely satisfactory, while others were far from being so. When a low price was received the publicity of same was detrimental to our brands in the Eastern markets. For that reason we discontinued this marketing method.

"With such a large volume of fruit going forward through different marketing media, to be sold at destination, we think the f. o. b. auction might depress prices and therefore be detrimental to the industry. If, however, the entire orange crop could be sold f. o. b. by any method and all sales made at this end of the line, we believe it would be an advantage to the industry."

R. M. SHEEHAN

Manager California Grape Growers' Exchange, San Francisco

"Many members of the Exchange who had late grapes during the past season availed themselves of the f. o. b. auction method of selling and almost universally were satisfied with results. It brought them quick returns for their fruit and was so altogether different from the consignment methods that the plan has taken deep root with California fruit growers

"A grower cannot help being favorably impressed when, after billing out a car of grapes, he is able to know within 48 hours what price his fruit brought and at the same time receive his money for it Such a method enables him to *(Continued on Page 19)*

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IN addition to publishing many articles by specialists of the State Agricultural Experiment Stations and Extension Service, ORCHARD and FARM maintains an eminent staff of associate and contributing editors, including such widely-known authorities as

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LUTHER BURBANK — Famous Plant Breeder
DR. J. ELIOT COIT — Citrus Fruits
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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY
By THE EDITOR

"HITTING THE TRAIL" — Out of Los Angeles at dusk, through Hollywood and over Cahuenga at a snail's pace, so dense the traffic —and Ventura boulevard stretching away a blaze of lights as Sunday pleasure seekers whir homeward.

We Californians take the sudden descent of night as a matter of course; the Easterner notices it immediately—he is accustomed to gently-fading twilight for hours after sundown. Has this contrast something to do with the superiority of our attainments? With darkness comes coolness, and rest for man and beast. But in the corn belt, oppressive heat may linger with the half-light of early night and on into the "wee sma' hours," while the weary farmer seeks vainly for refreshing sleep. His jaded team, too, starts the morrow's work with low-hanging heads. But every California night brings new energy from the mountains and the sea!

"LOTS FOR SALE"—Stores and homes for miles along what was not so long ago a country road. "Lots only $2500" where a decade ago improved orchard acreage at that price was unheard of!

A new town, building in a former barley field; a bit quiet now and not many lots selling, we are told—but gone forever for agricultural purposes. A temporary lull will not stop the march of population. The entire San Fernando Valley once sold for $10,000!

Encouragement and justification here for those who predict tremendous farm land development in the great central valleys! The real business of producing food for the millions of a great city cannot be done upon $5000 land. And authorities say no less than 50,000 acres, tributary to Los Angeles, has been withdrawn from production during the past five years! If you have a good ranch, with water, in the "back country," hang onto it!

A SIGFNIFICANT ODOR—We breathe deeply of the sweet night air, scented with the perfume of many blossoms. But suddenly we are conscious of a discordant smell—pungent, penetrating, strangely reminiscent of various unpleasant experiences. Disinfectant! Sheep dip! Hospitals! Spring cleaning!

A harsh reminder that the foot-and-mouth disease menace still hovers. This dairyman, sole survivor of ten or more who have given way to the subdividers, must have used the strong-smelling stuff by the barrel! He is taking no chances, and that he has escaped so far may be due to his eternal vigilance.

Not a man has set foot on the ranch without being thoroughly disinfected since the disease first appeared in the San Francisco Bay District! Every fence line is patrolled. Deliveries and collections have been made at the gate for months.

Prevention has cost this big dairy thousands of dollars, but there were tens of thousands at stake. The owner did not wait for quarantine regulations to throw a cordon around his property; he will not relax his vigilance until long after the menace is officially declared past.

He is a business man and is always looking and planning ahead; he is known as one of the most successful milk producers in the West.

CLIMATE AND WATER—El Camino Real—What marvelous changes Time has wrought since patient, devout Fra *(Continued on Page 8)*

WHAT'S NEW? Keeping Abreast of Agricultural Progress

Releasing More "Hot Dogs"

BECAUSE of the shortage of cattle feed this year California meat packers are preparing to slaughter an unusually large number of lean animals, a large percentage of which will be converted into weinerwurst sausages, which form the basis of "hot dog" sandwiches. The local demand for the later during the past few years has shown a remarkable increase.

Bring College Courses South

IN RESPONSEE to the demand for more technical agricultural information in the Southern part of the State, the California College of Agriculture is planning to give short courses in viticulture and deciduous tree fruits in that region next November. Similar courses held at Davis have been attended by 150 to 250 students. The work will be of a practical nature, especially suited to growers.

Getting Bulletins Now Easy

THE U. S. Department of Agriculture has prepared three bulletin indexes—sent free upon request—which make it easy to choose the publications wanted. One of these indexes lists bulletins alphabetically by subject matter, instead of by number.

In addition to the alphabetical and numbered index, there is a list giving bulletins of special interest to persons living in cities and towns, such as Food and Diet, Household Pests, Poultry, Gardening, Fruit Raising and Flowers.

Boll Weevil in Arizona

A SPECIES of cotton boll weevil is reported in the Postvale district, near Tucson, Arizona. The value of the cotton crop in that section, which covers several thousand acres, has been estimated by State authorities and all of the plants ordered destroyed. The farmers, however, refuse to obey this order, claiming no money has been appropriated to pay them for the crop to be destroyed.

California cotton growers are watching the situation closely, believing their industry to be seriously menaced by the proximity of the boll weevil.

Oregon Buys Pumping Plants

BECAUSE of the severe drouth which Oregon is experiencing, many pumping plants for watering gardens and orchards are being installed in that State. Plenty of water is available for this purpose, while there is ample electric power to run the pumps.

During the past few years numerous pumping plants have been installed in the Umpqua Valley for watering prune orchards and have proved very profitable investments, judging by their increasing number. The Willamette River and its tributaries carry enough water to irrigate liberally the millions of acres of rich farm land through which they run.

Financing Farm Students

CALIFORNIA financial institutions might with profit follow the example of the Atlanta Trust Company in loaning Georgia agricultural students money to purchase and equip land for farming, according to C. H. Lane of the Federal Board of Vocational Training. Few agricultural graduates have an opportunity to practice what they have learned, he points out, and arrangements to finance them should be made by banks and trust companies.

Lane believes the present agricultural depression will be followed by a period in which there will not be available enough trained farmers to meet the demand.

Establish New Potato Grade

A NEW seed potato grade has been established by the Oregon Agricultural College. The plan was worked out by E. R. Jackman, extension specialist in farm crops. The grade covers potatoes much above the average, but not quite good enough to be classed as certified seed.

It is expected that 50,000 bushels of potatoes will make the new grade, out of a half million-bushel crop. Usually only 15,000 bushels qualify as certified seed.

More Oregon potatoes are disqualified on account of mosaic disease than from any other cause. A fee of 6 cents per sack is charged for certification work, a slight increase over the former charge of 5 cents, but the $1 application fee has been discontinued. Last year Umatilla County produced over 50 per cent of Oregon's certified seed potatoes.

New Killing Device Tested

AS a result of the $10,000 prize offered by the Society for the Prevention of Cruelty to Animals for "a safe, practical device, rapid in action, by which large animals can be instantly and painlessly killed," there was submitted to the committee in charge an instrument claimed to meet these specifications.

The device recently was tested at the Armour packing plant, Chicago, in the presence of the committee and representatives of the American Institute of Meat Packers. It is operated by compressed air and drives a bolt into the brain with the rapidity of a bullet, the latter being released by touching the gun to the animal's head.

"You may say for us," announced Dr. Hayes, representing the Institute, "that we believe it is only a matter of working out details to demonstrate that the new device is practical and effective. Probably little opposition will be offered to its adoption. We want to kill animals in the humanest manner possible."

And Now—Vacuum Currycombs

FOR those who can afford it, the new vacuum currycomb promises to relieve farm hands of a hard, disagreeable job of hand work—cleaning horses. The invention, which works something like a vacuum carpet sweeper is said to remove dirt from the skin as well as hair and obviate the danger of the workman being kicked or bitten when currying a sore or tender spot on the equine frame.

Use Private Raisin Brands

THE decision of the Sun Maid Raisin Growers to introduce private brands appears to meet with general approval, as it is expected to aid [illegible]. The California Fruit Growers Exchange [illegible] use of private brands, although all first-[illegible] is sold as "Sun Kist," just as all fancy A[illegible] raisins will go out under the Sun Maid label.

Since there is more or less difference in the quality of fruit produced in different localities and in the manner of packing, private labels enable [illegible]ers to select the particular goods they [illegible] purchase.

Burning Up Oregon Soil

RECENTLY a fire originating in the tule [illegible] south of Lake Malheur, Oregon, destroyed [illegible] tons of hay, several barns and other valuable property. The top soil is composed of decayed [illegible] something like peat, and when dry will burn [illegible] to the wet clay beneath, destroying much valuable humus and plant food.

It has been found very difficult to extinguish [illegible] fires in the Malheur and Klamath regions, as the fire sometimes will smolder beneath the surface for weeks and break out hundreds of feet from the point of origin.

Appoint New Bug Fighters

TWO unusually able men recently have been [illegible] to the force of bug fighters employed by the College of Agriculture, University of California. [illegible] of them is Dr. F. Silvestri, director of the zoological laboratory of the Royal School of Agriculture, Portici, Italy, who has had much practical experience in handling beneficial insects for the Italian government.

Dr. Silvestri has made several foreign collecting trips for the purpose of introducing good [illegible] and is credited with the introduction into [illegible] from Africa of several valuable predators on the Mediterranean fruit fly. He is an energetic worker and a firm believer in this method of [illegible]. He goes to China for the special purpose of finding insect enemies of California citrus pests.

P. H. Timberlake of the Hawaiian Sugar Planters' Station, is coming to Southern California to [illegible] in the importation of predatory insects.

THEY SAY
"Farm Bureau, Co-ops Don't Mix"

J. G. FRANCE
Photo, courtesy Southern Trust and Commerce Bank

J. G. FRANCE
Farm Adviser, San Diego County

YES, we are strong for co-operative marketing, in fact, it seems the only logical solution of the farmers' greatest problem, but we believe it is the function of the Farm Bureau to promote [illegible] the Extension Service to assist, in the organization of needed commodity marketing associations.

In other words, I think it better for the Agricultural Extension Service and the Farm Bureau to leave the management of such organizations to the various groups of producers interested.

When a marketing association is properly organized, however, the Farm Bureau should encourage and support it in every way. Similarly it is the province of the Extension Service to concern itself with the educational work of a co-operative and promote the best interests of its [illegible].

Probably no chapter in Farm Bureau history contains more black marks than that [illegible] with marketing. There is nothing [illegible] courageous than attempting to keep alive a [illegible] marketing association without adequate [illegible] or competent management.

Another thing, I think it is a mistake to attempt to mix social activities, community [illegible] and such factors with marketing. The latter should be strictly a business proposition conducted as such and managed by business men entirely separate from other [illegible] rural life which rightfully come in the Farm Bureau and other [illegible]

California Farm Labor Surplus

THE labor factor constitutes the [illegible] baffling as well as the most [illegible] agricultural problem in California, economically and socially, according to R. L. Adams, professor of farm management, University of California College of Agriculture.

He points out the aggravation of the [illegible] due to the change from extensive crops calling for little hand [illegible] to intensive crops requiring [illegible] quantities of hand labor, for [illegible] has so far no machine substitutes [illegible] been devised. One man-day per [illegible] per year, will produce one ton [illegible] hay or a half-ton of threshed [illegible]. A ton of fruit per acre, however, requires [illegible] times as many days' [illegible] of one man or "man-days."

[illegible] man-days per acre per year will [illegible] five tons of alfalfa hay or [illegible] tons of threshed rice; 22 to [illegible] man-days are required by each [illegible] of certain of our commonest [illegible]. In general, 1000 acres in barley, wheat or grain hay uses at most [illegible] man days of labor, while the [illegible] acreage in fruit requires 24,000 man-days.

[illegible] off against these contrasted figures is the fact that in the past 30 years California's individual fruit [illegible] deciduous and tropical, have [illegible] jumped from less than 11,000,000 to more than 46,000,000, or in terms of acreage a quadruplication and then [illegible]. On the other hand, the cereal acreage has fallen off about one-third.

The result is an increased supply of labor. But this labor, as Professor Adams points out, is not greatly wanted, except in the rush of the harvest months—notably July to October, and must take care of itself the rest of the year. Hence the socially as well as economically serious problem of the migratory worker.

Here is the present labor situation in 16 California counties:

Alameda—Labor demand 75 to 80 per cent of normal. Estimates show 40 per cent cherry crop, apricots [illegible] per cent, pears 80 per cent. Retrenchment policy of local manufacturers results in making harvest labor [illegible].

Butte—Needs less than normal and [illegible] supply ample with lower wages. $[illegible] to $3.25 per day, without board and room.

Fresno—Present supply more than sufficient. Possible shortage in September. Peak of raisin harvest comes in October.

Imperial—A surplus of men and always an unemployment problem.

[illegible]—Need fewer laborers, supply abundant.

Los Angeles—Demand light, with plenty of help available. Deciduous fruit prospect poor.

Napa—Crops light, prices low, more labor than can be used.

Orange—Supply greater than demand.

Placer—Needs normal, wages 30 to 35 cents an hour.

Riverside—Demand normal; supply ample.

Santa Barbara—Crop outlook normal, practically no labor supply problem.

Santa Clara—Labor demand normal, probably less than normal need of outside migratory help at peak of season.

Santa Cruz—Needs normal; supply ample.

Solano—Ample labor supply; $2.50 a day, not "found," standard wage.

Sonoma—Demand normal; increase for hop season, decrease in other harvests.

Ventura—Crops below normal; labor ample, with indications of coming distress from unemployed.

In an "off" year for farming like 1924, with city industries not "taking up the slack," the State of necessity fails to provide adequately for its hands. The situation is accentuated by the sheer inability of farmers to hire more than a minimum of workers at more than the lowest wage that will hold them in a year when hands are too numerous for the job. Most sections report crop prices so low as to drive farmers to tax their own families with more than their customary share of harvesting. Certain sections, with perhaps three-fourths of their orchards heretofore operated by Japanese share-tenants, report great difficulty in replacing these workers with tenants who can hold legally.

Adams offers no cut-and-dried remedy for this condition, though he suggests that California is in the midst of an agricultural and social experiment requiring many years to work out. He considers it a case of "hands off!" for doctrinaires.

"It doesn't help," declares Adams, "to stand on the side lines and coach the farmer with sage advice about rotation, diversification, direct selling, co-operation, getting Congress to do something, or any other of the cure-alls of the 'arm-chair' agriculturist. The California farmer knows far more about all these remedies than the men in the bleachers does. The questions at issue in these post-war days of transition will be solved only by the patience and determination of intelligent, practical men."

Radio on the Farm—V—Stops Drift to the Cities

By DR. RALPH L. POWER

"The Sky Crier," Los Angeles Examiner Radio Studio

DAVID SARNOFF recently broadcast through Station WOS of the Missouri State Marketing Bureau an address to the farmers, which contained some interesting high lights on radio in agriculture.

DR. RALPH L. POWER

Radio will relieve the farmer and his family from the sense of isolation which is, perhaps, the harshest handicap of agricultural life.

It will be a tremendous aid in keeping boys and girls on the farm and thus preserve for agricultural development the energies of thousands of ambitious young men and women [illegible] drawn away each year to urban [illegible].

[illegible] can be used to furnish accurate [illegible] and weather reports to the [illegible] and townsman. It also can [illegible] warning of approaching [illegible]. Flood warnings received [illegible] radio will be of priceless value [illegible] the farmer.

[illegible] can receive over the air accurate news of prices and trade conditions of farm products at all principal [illegible] within the hour.

[illegible] receiving sets will help [illegible] the social, cultural and re[illegible] life of every one. It will help [illegible] sectional differ[illegible] and develop greater national [illegible] and other [illegible].

[illegible] development will make possible [illegible] agricultural [illegible] open [illegible] the 30,000,000 [illegible] on farms.

[illegible]

tinue to drift away from the land, to herd themselves in great cities, to swell the ranks of industrial labor and leave the farms unmanned, agricultural life must be made more attractive.

The farmer deserves to share and should share in many of the educational opportunities now enjoyed only by the city dweller. His family deserves and will have the entertainment and cultural influences which the cities have created; his children should not be without the educational advantages which sparsely-populated communities cannot at present afford.

No movement to bring the young man or woman back to the farm could have fully succeeded without the vital, human touch that is the gift of radio. Radio is destined to bring the city to the farm, which is without the crowding, the dependence and fierce competition of the cities.

Millions of Coffee Cows

THERE are 3,000,000 coffee cows and 750,000 tea cows in the United States. That is to say, the quantity of milk and cream used in tea and coffee in this country is equivalent to the production from that many cows.

Coffee consumption is around one billion pounds annually or approximately 40 billion cups. This requires 40 billion ounces of cream, the milk equivalent of which is $1\frac{1}{2}$ billion pounds, or practically one-eighth the total production of milk in the United States.

Consumption of tea in the United States is practically 85 million pounds or approximately 21 billion cups. The quantity of cream used in tea averages only one-half that in coffee or one-half ounce per cup or a total in terms of milk of over three billion pounds.

Making liberal allowances for the use of milk in coffee and tea [illegible] half milk and half cream, there still would be more than one-[illegible] the [illegible] production of milk used [illegible] [illegible].

The Countrywoman's Club

FLAVIA GAINES LEITCH, *Executive Secretary*

I WISH that every woman who presides over a rural home in the Pacific West could have attended the seventeenth biennial convention of the General Federation of Women's Clubs in Los Angeles early in June.

FLAVIA GAINES LEITCH

If you could have seen that vast assemblage of women as they gathered each day to transact business and to take action upon practically every vital question of world importance you would have realized, as many of us have not realized before, the extent to which the world of women are organized, the scope of their interests and, above all, the place they have created for themselves among the advanced thinkers of the day.

If you could have been here and absorbed the spirit of that biennial you would have gone back to your country homes with the inspiration to organize the women of rural communities just as the women of the cities are organized. What the women of the city have accomplished through the frequently discussed, ofttimes criticised, and occasionally greatly disapproved of woman's club you can achieve by organizing the women in rural communities.

If you doubt the success of such association, consider the history of the General Federation. Its first biennial was held in 1892 with a membership of 60 clubs representing a few thousand women. Today there are many thousand clubs in the Federation and they represent nearly 3,000,000 women and about 18 different nations. At the time the Federation came into existence women were making rather spectacular leaps into the realm of affairs. It was said they were so enthused over the new world of thought and activity opening before them that there was a question whether a club devoted to home economics should be admitted to the Federation. This department now is one of the leading branches of study in the Federation.

GROWTH OF CLUB MOVEMENT

We countrywomen—I call myself countrywoman because in spirit at least I am one of you—have as patterns the women's clubs in every city and town in the country for our example. We can be inspired by their successes and their achievements and we can profit by their experience and mistakes. The women's clubs in their incipiency had no precedent, and they have progressed to their present standing and power simply by going steadily forward, making their plans and putting them into operation until they have perfected a powerful, world-wide organization.

Today their interest covers every known human problem from home economics to world peace. Their activities are international in scope. In this convention they took action upon numerous phases of legislation, for everything that pertains to the welfare of women and children and against all that is detrimental to the health, education and happiness of mankind.

I want to impress upon you, my countrywomen, the fact that the interests of city women are practically the same as yours. We, too, have our home economics problems and the multitude of questions that present themselves in rural communities. We also are vitally, inseparably allied with the great movements that sweep the country: world peace, child labor amendment to the Constitution, water conservation, educational and sanitary measures, prohibition question and countless others.

Whatever affects the people of great cities in a way affects the members of rural communities; therefore every countrywoman should participate in country, town, city, State and national housekeeping.

WHAT FARM WOMEN WANT

The editor of ORCHARD and FARM received many requests for a woman's department. "Give us something big," wrote the countrywoman, "something that will bring the city and the farm closer together."

One woman wrote, "We feel so far apart. When I go to a big city from my little home on an isolated farm I feel strange and awkward and as if I were in a different world, instead of my own America.

"I know the cause. My activities are confined to the work of our busy little farm. We have little opportunity to meet with people and exchange viewpoints on national questions or to exercise our mind in proportion to the activities of our bodies. Can't you give us a page that will make possible an interchange of ideas on the various vital subjects in which countrywomen are intensely interested?"

Let us get acquainted through this department. Let us work toward an organization of the countrywomen of the Pacific States.

When the General Federation of Women's Clubs held their first biennial in Chicago 34 years ago they little dreamed what a powerful, influential, successful organization they would be in 1924, when they met in Los Angeles. Who knows what far-reaching worth-while achievement may result from this new department in ORCHARD and FARM?

DAUGHTERS OF AGRICULTURE

There are 1,084,128 women engaged in agriculture, forestry and animal husbandry in this country. Nearly two-thirds of them do common work, but more and more women of education and specialized training are entering agriculture and there is an increased demand for women to manage dairy and poultry departments on general farms and to supervise fruit raising, vegetable gardening and floriculture.

There are 253,836 women dairy farmers, 2637 stock raisers, two foresters, 938 florists, 3194 fruit growers, 25 landscape gardeners, 2321 poultry raisers, 134 apiarists and 14,340 women foremen of farms and orchards.

Aside from the practical field, there is a demand for trained women to teach agriculture and horticulture in schools and colleges. The Department of Agriculture has conducted a survey of 10,015 farm homes in 33 Northern and Western States to ascertain the problems of the farm wife. The average day of the farm woman is 13 hours long in the summer and averages 11 hours for the entire year.

Of 100 farmer's wives, 87 have no regular yearly vacation. One-half begin work at 5 o'clock in the morning. Only 40 per cent have running water, the rest carrying it from a spring or well at an average distance of 40 feet from the kitchen; 81 per cent care for chickens, but only 16 per cent have the egg money for their personal use; 36 per cent help milk cows, 25 per cent care for livestock and 24 per cent spend an average of six weeks assisting in field work.

The average farm wife has a seven-room house to care for; 96 per cent do the family washing, 96 per cent bake all or part of the bread; 60 per cent make the butter. Only 26 per cent have gas or electric irons, while 92 per cent do part or all of the family sewing.

WIN ONE OF THESE PRIZES

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Tell us in a concise and interesting way what you think the COUNTRYWOMAN'S CLUB should be. Suggest topics for discussion. Tell how you think it can be made most helpful to all women readers of ORCHARD and FARM, bearing in mind this magazine is not distributed with the city editions of the Sunday Examiner.

Let your suggestion contain the things that are of vital interest to you in rural life.

No letter may exceed 300 words and it must be postmarked not later than July 15.

Be sure to sign your name and address clearly.

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One of the greatest production records ever made by a dairy cow has just been completed in the Morris herd at Woodland by the already famous producer, Aralia De Kol Mead Second. On two milkings per day she made 1172 pounds of butter from 22,486 pounds of milk and is bred to qualify for a 305-day record of 972 pounds of butter from 20,589 pounds of milk, her records for both periods being new world's records in Subdivision B.

DEVELOPING DEEP ROOTS

If young trees are given only enough water to keep them growing they will develop deep root systems in order to make use of subsoil moisture. This will enable the trees better to withstand drouth than those which have had an abundance of water and consequently develop a shallow root system, asserts E. P. DEWEY, [illegible] ORCHARD and FARM.

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WHEN ANSWERING ADVERTISEMENTS PLEASE MENTION THIS MAGAZINE

Poultrymen Save $1 Ton

"POULTRYMEN who are stockholders in the Poultrymen's Co-operative Milling Association are entitled to a discount of 5c per sack or $1 per ton on all of our branded products he uses," explains J. M. Davison, secretary of the organization.

"It makes no difference where he purchases his feed, whether direct from the mill or through his local dealer. In fact, most of our goods are distributed through the local dealers. The stockholder furnishes to us a memorandum from his dealer of the amount of his purchases, which entitles him to his membership rebate from us.

"Many of our stockholders furnish us with these memorandums monthly, while others bring or send them in whenever convenient. This membership rebate is paid by us direct and is in addition to any dividends on stock and any other privileges to which stockholders are entitled.

"Stock in our company is a very profitable investment to users of our feed. For instance, the poultryman who would average three tons of our feed per month would receive membership discounts of $36 per year. If he purchased $100 worth of our stock his membership rebates would more than pay for the stock in three years, so that he would then own the stock free of any cost, in addition to the dividends.

"The amount of the membership rebate a stockholder receives depends on the amount of PCA feeds he uses and the amount of the dividend he receives depends on the amount of stock he owns."

Long Beach Lad Tells Poultry Experience

By K. W. KOCH

Los Angeles County Club Leader, Agricultural Extension Service

RAY BINNS, second winner of the Long Beach egg production club contest — which closed recently—gives the following account of his experiences prior to entering the contest last December:

"Six years ago we moved into the rural district of Long Beach. We had a full acre of ground, bare, except for thorny weeds. There also was a cowshed and numerous other small buildings that easily could be converted into poultry coops.

"I never had owned a flock of chickens, but saw the possibilities of a poultry project and started to play the game, at first on a small scale, buying 15 Plymouth Rock hens and a rooster.

"These birds did not have pedigrees but were of a fine strain. After a few weeks I came into possession of an excellent bunch of White Leghorn hens. Being a novice at the poultry game, I experimented with different kinds of feeds and feeding practices. First I hatched by hen, then tried buying baby chicks and did all of the many other things most beginners do. In killing cockerels for the table I tried chopping off their heads, sticking them and wringing their necks, in an effort to find the best way.

"For about four years I selected stock at random and had a good sized flock. The breeds I had during this period were Anconas, Wyandottes, White Leghorns, Barred Rocks, Minorcas and Rhode Island Reds. Through teaching and experience I learned that uniformity was essential in the flock."

A contest recently was started among the members of the agricultural department of Long Beach High School and continued for a period of five months. It was supervised by F. M. Stephenson, head of the department, in co-operation with the Extension Service. Each member had a flock of 15 birds. The boys were not partial to any one breed, Rhode Island Reds, Barred Plymouth Rocks and White Leghorns being used.

Binns continues his chicken story as follows:

RAY BINNS

"When the egg production contest started, I had about 35 fine Rhode Island Red hens. I culled out the best 15 hens and entered the egg-laying contest. In feeding these hens I did what I supposed was scientific experimenting in feeding and housing [illegible] numerous bulletins and books from the U. S. Department of Agriculture and the California College of Agriculture. Also I bought and [illegible] several poultry books.

"During this experimental period I fed sprouted oats, raw and cooked beef [illegible] wet mash, dry mash in hopper, fed grain at night and [illegible] in the morning [illegible] stale bread. [illegible] the conclusion [illegible] in mixing two parts wheat, cracked corn and [illegible] each one part I have a scratch surpassing [illegible] ready-made. Also for a while I mixed my own mash, but later used a commercial mash.

"While the contest was in progress I purchased [illegible] accredited White Leghorn chicks, which are doing fairly well and now are four months old. Am beginning to see the young roosters, but for a time was prevented by the foot-and-mouth disease.

"My favorite breed is Rhode Island Reds, but my choice has shifted to the White Leghorns because of their laying capacity and profit-earning power. Although I have passed out of the beginner's stage I realize I still have much to learn about the poultry business."

Binns' records show that he fed one-third of the scratch mixture, previously mentioned, in the morning and two-thirds at night. The mash was kept before the hens all day and they were given all the greens, lettuce and lawn clippings they could eat.

During the five months his birds laid 125¾ dozen eggs which sold for $57.55. Expenses totalled $[illegible] and the total receipts $80.[illegible]. His project yielded a labor income of $[illegible] and a net profit of $[illegible].

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Chico Grows Record Early Potato Crop

E. H. GRUBB, of Colorado, California, consulting agriculturist and farm adviser extraordinary, says in all his experience in the agricultural interests of railroads, irrigation companies and other ranch and farm affairs he has had just one man strictly follow his advice regarding seed, care, irrigation and all the other details of growing a potato crop.

That man is J. M. Stutz of Chico. He has 20 acres of good land a mile west of Chico; land that has grown grain for years, but the soil is of good texture.

Stutz is a Hanoverian. He came to this country when he was 17, going to St. Louis. From there, with a group of settlers, he went to Mississippi, bought land for $20 per acre, stayed three months, left it and came to California. For about seven years he has managed the Shaw farm at Chico.

This is the first year he has operated his own land. He got in touch with Grubb by attending a lecture on the potato delivered by Grubb at Paradise, in Butte County. He was so much interested that Grubb went with him to see his crops of early potatoes and beans.

Early Rose, White Rose, Earliest of All and Chile Garnet potatoes had been planted late in February. The plants were just coming through the ground March 1.

"If you protect this crop from frost with orchard heaters you will have a wonderful early market for your potatoes," predicted Grubb.

The next day Stutz went to Sacramento and bought a car of gallon tin fruit cans, which he used for orchard heaters.

March 27 the thermometer registered 24. April 24 it went to 26 for two hours. Stutz had the heaters going. Neighboring crops were set back from 10 days to three weeks.

Harvesting new potatoes started on the Stutz farm May 20. The crop will sell for $300 per acre this year. One acre of beans will bring $1000. With commercial fertilizer and cover crops this yield will be increased next year.

The crops are of such quality that the local merchants come out every day to get everything Stutz has ready for sale.

In preparation for next year's crop sheep manure is being hauled and piled and as fast as the potatoes are harvested cowpeas are being planted for a cover crop to be plowed under in November.

Next year's potato crop will be planted according to methods used by Channel Island and Canary Island growers who furnish the first early potatoes for the Paris and London markets.

Seed potatoes from the present crop stored now to give 40 days dormancy before planting, will be planted in August to grow seed for the 1925 spring crop.

Whole seed will be used, dipped in corrosive sublimate—2 ounces to 15 gallons of water—soaked 1½ hours. The whole seed will be sprouted in [illegible] in January, until the sprouts are 1 to 2 inches long, then planted in [illegible] up and warmed ridges.

Whole disinfected seed [illegible] plot planted 40 days after the planting of cut seed caught up and were dug at the same time. [illegible] demonstration was suggested by Grubb so that Stutz would have [illegible] onstration of the value of [illegible] tice.

The Stutz potato patch is one of the show places of Chico. The [illegible] cultural class of the high school visited it recently and Grubb lectured on the crop.—W. S. GUILFORD.

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A. J. Baumann, Dept. B, 268 Market St., San Francisco, Cal.

Club Pigs Grow Rapidly

THE pig raised by Lester [illegible] white member of the [illegible] pig feeding contest made [illegible] daily gain of two pounds [illegible] the start of the contest. [illegible] weighed 93 pounds and [illegible] tipped the beam at 240 pounds [illegible] permission to [illegible] his [illegible] and is now [illegible] chops.

Nevin Dettrick's pig [illegible] pounds to [illegible] pounds in [illegible]. The club is being supervised [illegible] Lloyde [illegible] agricultural instructor [illegible] operation with the Extension [illegible].

It required [illegible] for an average of [illegible]

Trees in Vineyards

WILL the vineyards of Napa County be replaced by some other kind of fruit? No one has yet been able to give a positive answer to this question. A number of farmers are taking precautions to be prepared for any emergency that the present prohibition movement may precipitate.

Grape growers realize that their present prosperity is due to the high prices which they have been receiving for the fruit which they have shipped east. This prosperity may be but temporary, and for this reason the vineyards are being interplanted. In many cases no vines are removed, but the tree is set right beside the vine where it grows very satisfactorily. In six or seven years it may be necessary to remove a few vines to make room for the trees. At the end of that time we may know whether the grape industry will continue to be profitable or not.

Other growers are interplanting their vineyards with walnuts. Pears also are used by some. We find that this can be done successfully where the growers take good care of their property. It is, of course, needless to say that in a vineyard that is neglected it would do very little good to plant a tree that is to receive no care. We have vineyards that are at present producing as much as four tons of good, marketable grapes per

acre, in which trees are growing which may replace the grapes, should it become impossible to market them.

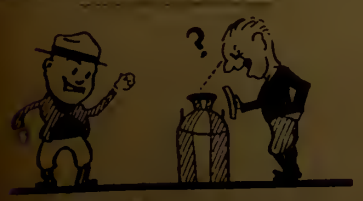
Our farmers think it advisable to plan ahead, in order to be prepared for any emergency that may arise. If after a number of years, conditions should warrant the continuation of the viticultural industry, some of our growers might actually take out the trees that have been interplanted in the vineyards.—H. J. BADE, Farm Advisor, Napa County.

Planning Rabbit Market

SEVEN years ago, when Sacramento rabbit breeders made their first display at the California State Fair, only 23 animals were exhibited. Numerous visitors were heard to remark, "You'll never get me to eat rabbit meat." When the exhibitors tried to tell about the wonderful garments that could be made from rabbit skins, passersby smiled incredulously.

Last year there were displayed at the State Fair 211 single rabbits and [illegible] does with litters. Everybody was asking if any more rabbit sandwiches would be served, while the demand for breed animals now exceeds the supply. As for garments made of rabbit fur, they are too common to excite comment. "The world do move."

The rabbit industry of Central California is grown to such an extent that a co-operative rabbit market is being planned for next winter.—MRS. [illegible] GANNON, Secretary California Rabbit Breeders' Association, 2735 [illegible] boulevard, Sacramento.



THE "GREEN" HAND

[illegible]

Your Garden of Flowers

By HELEN TEMPLE

SUMMER ROSE CULTURE—Summer is vacation time for the rose garden. The bushes have finished their spring blooming and have settled down to a sleepy summer. We must allow them to rest undisturbed, except for a pruning in July, which should not be as severe as the winter pruning, but quite as important. All long shoots should be shortened, the number reduced and the bush trimmed to shapeliness.

HELEN TEMPLE

Water must be withheld for a time. The soil should not be allowed to become bone dry under the dirt mulch, but constant irrigation must be stopped. The rose garden should be cleaned of trash and weeds, a thick mulch of earth prepared and the garden will need no more attention for a few weeks. The withholding of water allows the plants to rest and store up energy for blooming during the late fall, which often is better than the spring blooming. Roses in November bring greater beauty to the garden than any other late blooming shrubs or plants in our gardens.

When roses are planted in the lawn, or at the edge, it is impossible to withhold water from them. They are in almost constant growth and bloom, though the blooms are scattering and small. The only practical method to grow bush roses is to have a rose garden, where nothing else is grown. Climbing roses, of course, are an exception.

A CRAZY QUILT GARDEN—Recently I found a wonderful little "crazy quilt" garden along the highway. Circulars of yellow, squares of red, oblongs of pink, crescents of purple, triangles of lavender all grouped together. I was not quite sure whether I had found a futurist garden or a crazy quilt planting, until a little old lady bounced down the steps and remarked, "My zinnias ain't bloomed good this year." Then I knew I had found a crazy quilt garden.

The little old lady opened the gate and said, "Come in and see my crown of thorns. It's the best one I ever did see. I'm right proud of it." So I went in to see the crown of thorns, which was truly a wonderful specimen. In the meanwhile, the little old lady pulled out a shapeless piece of tobacco from her pocket and offered me "a bile." I declined quite hastily, but told her to go ahead and chew; that I never used tobacco except as a plant spray. Then I found three healthy little ornamental shrubs in her garden. I was surprised to find shrubs of this type in a crazy quilt garden, as they are quite expensive and quite difficult to root.

The proprietor assured me she had started the slips. Her method of starting slips is quite unusual. "I just cut slips from them shrubs when I was out walkin' one day," she explained. "Then I took the cuttings home and put them in water over night. Next morning I made holes in some old potatoes just as big as the stems and pushed the stems down into the holes. Then I buried the potato and the slip, with just the top of the slip sticking out of the ground."

The plants rooted themselves. The potato prevented the slip from drying out and provided an anchor. The potato method in starting slips was one handed down to her from her mother. I pass it on to our readers. Perhaps the method is so old that it may become new but it is quite novel to me.

CHRYSANTHEMUMS—During June and July the old chrysanthemum plants are thinned of shoots and trimmed. They will furnish early blooms, while the shoots may be planted to furnish late blooms. I prefer chrysanthemum tips when starting as late as this. Bury them until only the last two or three groups of leaves are above the ground, pushing the lowest group well into the soil at their base. These make the roots, starting very soon if kept moist. Late fall and early winter will bring them into bloom.

Zinnias used to parade across our grandmother's garden and now they have come back in full force into our own gardens—though, of course, they have been improved ever so much. Some of them have come back looking like chrysanthemums while others are mistaken for dahlias. Nevertheless they are zinnias and zinnias may be started in [illegible] this, though they will not send out quite such large blooms as the earlier planted seed.

SOME SPLENDID ZINNIAS—Dahlia-flowered zinnias turn their petals in toward the center, giving a deep appearance instead of flat. The real California zinnia is called the Golden State dahlia-flowered zinnia. It is yellow upon first opening, turning to an orange when fully opened. These dahlia flowered zinnias are very large, measuring five or six inches in diameter and four inches in depth. The seed germinates just as readily as the common sorts and the plants grow very quickly. I planted several varieties of zinnias, pico ee, dahlia-flowered, giants and common zinnias, or medium-sized flowered. Germination was rapid with all, but the larger sorts were first ready for setting out.

The giant quilled zinnia resemble the chrysanthemum somewhat. The petals are partially tubular, with the reverse side of lilac color. These zinnias are to be had in shades of rose, lilac, bronze and red.

Zinnias are sown in seed boxes, then transplanted when they have four leaves, either in the open or to larger boxes. If later blooming is desired transplant to deeper boxes about three inches apart. Breaking off the tips after they have made three or four inches growth in the open will make them branch.

They like a good, loamy soil and need an abundance of water to make large flowers and long stems. Later in the summer a mulch of old strawy manure will aid in conserving moisture and provide food for better blooms. They are free from disease.

FLOWER SEEDS TO SOW—While June and July are maintenance months in the garden, there are still a few seeds to be sown for late fall and winter flowers. Calendulas, dusty miller, candy tuft daisies, zinnias and pansies may be sown. Plants of asters, zinnias, chrysanthemum, salvia, cosmos, carnation and marigolds may be set out where the weather is not too hot.

Gladioli, tube roses and dahlias for late blooms may be set out now. Set them deeper than usual and mulch with straw in all sections except the coastal region where fogs prevail throughout the summers. Gladioli are often sold as 70-day, 80-day or 100-day bloomers. The Annie May is a wonderful new gladiolus blooming in 100 days. It is a beautiful lilac with a pure white throat, blooming on spikes five feet in length. The Ionia blooms in 80 days. It is a long spiked bloomer of exceptional coloring and beauty, being a soft yellow blended with pink. Another new variety of California is the golden measure, a big, clear yellow flower.

POMPOM DAHLIAS POPULAR—Pompom dahlias are becoming so popular that every garden should save a space for some of them. They are wonderful for cut flowers and make a very pretty display in the garden. All colors may be had this year, although a year or two ago there were only three or four.

Now is the time to divide the old iris roots and replant.

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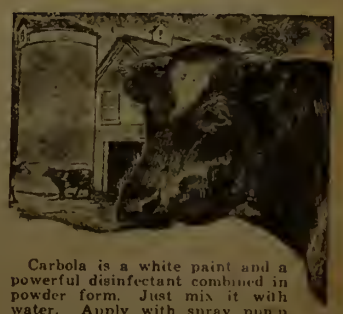

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BEAUTIFUL Xmas Berry Plants. The Toyon, 4 years old; will berry next season. Grow your own. Get one while they last. Supply limited. $2.50 each. Ready for delivery now. Toyon Gardens, Bay Point, Cal.

TOBACCO FOR SALE

BUY YOUR CIGARS and smoking tobacco direct. Fifty Aspirations, prepaid, $1.50. Agts. wanted. Havana Smokehouse, Homeland, Ga.

MISCELLANEOUS

FRUIT JAR LABELS make your jars look neat and attractive, also make it easy to find just the jar you want. 400 assorted labels for only 50c postpaid. Check or money order. LESTER G. GARBE, 363 Frederick St., San Francisco, Calif.

FARMER WANTED to operate banana plant nursery in California. Demand increasing. Large profits. ROLLES BANANA NURSERIES, Oldsmar, Florida.

Advertising Our Oranges in Radioland

FOLLOWING is part of a California orange speech broadcasted from Chicago by C. P. Early, manager Mutual Orange Distributors, Redlands, and vice president Federated Fruit and Vegetable Growers.

"Come with me to that magic land where the sun crowns the snow-capped mountain peaks; where the soft ocean breezes sway the nodding palms and the world's finest oranges and lemons are grown—California. From Tulare County, in the northern part of the State, to the last green spot on the very border of Mexico in San Diego County, you will find the picturesque orange and lemon groves that have brought enormous wealth to the State.

"Practically twelve months in the year you will find pickers are at work harvesting some of the numerous varieties of oranges, lemons and grapefruit. Whether the grove be nestling at the foot of the mountains in San Bernardino County, or blissfully sleeping beneath the sun of San Diego County, you will find it to be an example of a well cultivated and supervised agricultural producing property for California growers are famous for their advanced cultural methods.

"Coupled with the expert care and culture of the groves—which results in superior products—is the highly organized marketing system by which California's enormous crop is sold. The bulk of the annual production is picked, shipped and sold co-operatively.

"Among the most successful and practical of the non-profit, co-operative marketing organizations—composed of and controlled by the growers themselves—is the Mutual Orange Distributors. This organization was founded in 1906 and is now handling in the neighborhood of 2,500,000 boxes of citrus fruit annually, or, in other words, some 6000 cars or 500,000,000 oranges.

Do you realize that if you placed that many oranges side by side—each averaging about two inches in diameter—that it would form a golden line approximately 15,782 miles in length? Imagine the problem involved in successfully disposing of such a crop.

"The Mutual Orange Distributors has demonstrated that a non-profit, co-operative sales organization working with the growers interest paramount at all times, can efficiently handle such a vast quantity of fruit."

How to Make Good Concrete Manure Pit

MANURE pits or boxes are desirable for the temporary storage of manure, especially in towns and cities. These have been widely advocated but the difficulty has been that manure often becomes infested before it is put into them, and flies frequently breed out before the boxes are emptied and often escape through the cracks. To obviate these difficulties a manure box or pit, with a cone trap attached is desirable.

In order to retain the fertilizing value of manure to the greatest extent, it is advisable to exclude the air from it as much as possible and to protect it from the leaching action of rains.

It is not necessary, therefore, to cover a large part of the top of the box with a trap, but merely to have holes large enough to attract flies to the light, and to cover these holes with ordinary conical traps, with the legs cut off, so the bottom of the trap will fit closely to the box.

The same arrangement can be made where manure is kept in a pit. In large bins two or more holes covered with traps should be provided for the escape of the flies.

Manure boxes should be used by all stock owners in towns and cities; they are also adapted to farms. The size of the manure bin should be governed by individual needs, but for use on the farm it is desirable to make it large enough to hold all the manure produced during the busiest season of the year.

A box 14 feet long, 10 feet wide, and four feet deep will hold the manure produced by two horses during about five months. About two cubic feet of box space should be allowed for each horse per day.

The bin should be made of concrete. The bin may have a floor or it may be set in the ground several inches, and the dirt closely banked around the outside.

For the admission of the manure a good-sized door should be provided in either end of a large bin. A part of the top should be easily removable for emptying the box, or one entire end may be hinged.

On account of the danger of the door being left open through carelessness, it is advisable to arrange a lift door which can be opened by placing the foot on a treadle as the manure is shoveled in. The door should be heavy enough to close itself when the treadle is released.—U. S. DEPARTMENT OF AGRICULTURE.

Make Much More Milk

MILK production last year was 7,000,000,000 pounds more than in 1922, according to the U. S. Department of Agriculture. Production was 109,736,062,000 pounds, compared with 102,562,221,000 in 1922.

Consumption of milk for household purposes reached 50,440,000,000 pounds, as compared with 46,672,560,000 in 1922. There was manufactured 1,774,881,000 pounds of condensed and evaporated milk as compared with 1,431,349,000 in 1922.

The output of creamery butter was 1,252,214,000 pounds in 1923 and 1,153,515,000 pounds in the preceding year; total production of cheese, 394,697,000 pounds in 1923 and 369,980,000 in 1922.

Consumption of butter was 17 pounds per person last year and 16½ in 1922; consumption of cheese, four pounds per person, compared with 3¾ the preceding year; condensed and evaporated milk, 13.25 pounds, compared with 12.69; ice cream, 2.66 gallons, compared with 2.43 in 1922.

Dried casein production more than doubled during the year, being 14,548,000 pounds, compared with 6,927,000 in 1922.

CITY DEMAND SLACKENING

Some leveling down of the disparity between city and country may result from the waning industrial boom of the past year, the U. S. Department of Agriculture says in pointing out that the slackening urban demand for industrial products under present circumstances may be expected to result in some easing down in wages and prices of things farmers buy.

LUMBER—Building Material

O. B. WILLIAMS CO., SASH and DOORS. Largest Mill in the Northwest Selling Direct to You.

SCREEN DOORS with strong mortised and tenon joints, covered with best galvanized steel screen, or with copper bronze wire cloth $3.00 to $5.50.

CUPBOARD DOORS, three-ply veneer panels—$1.25 to $2.25. With glass and wood bars, $1.25 to $3.75.

Non-collapsible Ironing Board complete with cabinet to set into wall, and sleeve board, $15.00.

Write for FREE Illustrated Catalog of money saving values in Millwork and all kinds of beautifying, labor-saving fixtures for the home.

Complete Satisfaction Guaranteed.

O. B. WILLIAMS CO., SASH and DOORS, 1334 First Ave., South Seattle, Wash.

Friendly Philosophy

(Continued From Page Four)

Junipero, footsore and alone, trod that narrow, winding, mission trail!

Now, a broad ribbon of concrete, it leads us almost too soon to our first stop—Santa Barbara, and a real night's rest!

What more desirable can California offer? Is the thought of almost every traveler on almost every visit to Santa Barbara County.

What, indeed, if one has the means and inclination to pay the market price for its wonderful climate and scenery!

Mounting land values have led the increased planting of citrus, Farm Adviser Batchelder tells us—and there is much talk of developing more water for the valuable foothill lands which need only this to become almost invaluable!

More wells are planned by private owners, and there is a movement on foot to dam more of the canyons to hold or store in the soil winter flood waters. This county has many dormant agricultural resources, and there are excellent opportunities here.

But yearn not for Santa Barbara's equable climate, ye Northern Valley farmers in favored districts that have water to spare—and there are a few places where this is true even this year!

FIRE! FIRE!! FIRE!!! — How brown are the hills! Never before has the Southland seemed so dry early in June. The motorist ahead of us tosses his cigarette stump thoughtlessly into the yellow grass beside the road. Many a disastrous conflagration has been started in just that way, my friend!

This year, as never before, let us all watch our matches, our "smokes," our camp fires! The summer of 1924 gives promise of being one of gigantic fire losses. Only the co-operation of all citizens can prevent the threatened disaster.

That careless smoker is punished, he has a puncture! And so we leave him working beside the road and speed on our northward way of which more, next week!

The New BULLETINS

AMONG new bulletins and circulars issued by the United States Department of Agriculture, the following are deserving of special mention. They may be obtained free on application to the Division of Publications, Department of Agriculture, Washington, D. C. Order by number.

Farmers' Bulletins

- Fattening Steers in the Corn Belt ... 1382
- Turkey Raising ... 1409
- Control of the Codling Moth in the Pacific Northwest ... 1326
- Castration of Hogs ... 1357
- Clover Failure ... [illegible]
- Control of Potato Tuber Diseases ... 1367
- Homing Pigeons, Their Care and Training ... 1373
- Marketing Eggs ... 1378
- Rural Planning, the Social Aspects of Recreation Places ... 1388
- Sorgo Sirup Manufacture ... [illegible]
- The Guinea Fowl ... 1391
- The Windbreak as a Farm Asset ... 1405
- Prune and Cherry Brown Rot in Pacific Northwest ... 1410
- Vegetable Seeds for the Home and Market Garden ... 1390
- Idle Land and Costly Timber ... 1417
- Growing Rye in the Western Half of the United States ... 1358
- Bridge Grafting ... 1369
- Beef Production in the Cotton Belt ... 1379
- Apple Scald and Its Control ... [illegible]
- Buying a Farm in an Undeveloped Region ... [illegible]
- Marketing Poultry ... 1377
- Mouse Control in Field and Orchard ... 1397
- Diseases and Insects of Garden Vegetables ... 1371

Department Bulletins

- Flushing and Other Means of Increasing Lamb Yields ... 996
- Field Experiments With Atmospheric-Nitrogen Fertilizers ... 1180
- Potash From Kelp ... 1191
- Dusting and Spraying Peach Trees After Harvest for Control of the Plum Curculio ... 1205
- An Economic Study of Family Living in Farm Homes ... 1214
- Results of Experiments With Miscellaneous Substances Against the Chicken Mite ... 1228
- Growth and Feeding of Honeybee Larvae ... 1222
- Costs and Farm Practices in Producing Potatoes ... 1188
- Drainage District Assessments ... 1207
- Conditions Affecting the Demand for Harvest Labor in the Wheat Belt ... 1230
- The Natural Regeneration of Douglas Fir in the Pacific Northwest ... 1200
- Cost of Producing Winter Wheat in Central Great Plains Region of the United States ... 1198
- The Chinese Jujube ... 1215
- The Woolly-Pod Milkweed as a Poisonous Plant ... 1312
- Delinting and Recleaning Cottonseed for Planting Purposes ... 1219
- Agricultural Survey of Europe (The Danube Basin—Part I) ... 1234
- Studies in the Physiology and Control of Bunt, or Stinking Smut of Wheat ... 1239
- Experiments with Emmer, Spelt and Einkorn ... 1197

Circulars

- Spraying Strawberries for the Control of Fruit Rots ... 309
- Extension Work in Agricultural Engineering, 1922 ... 270

The following local bulletins can be procured by writing the College of Agriculture, Berkeley, California, University of California.

- A Survey of Orchard Practices in the Citrus Industry of So. Cal. ... 374
- The Cost of Producing Market Milk and Butterfat on 246 California Dairies ... 372
- Construction of Farm Dehydraters in California ... [illegible]
- Pear Pollination ... [illegible]73
- Turkish Tobacco Culture, Curing and Marketing ... [illegible]
- Comparison of Woods for Butter Boxes ... [illegible]9

The following bulletins may be obtained by writing the College of Agriculture, University of Arizona, Tucson, Arizona.

- Design and Construction of Small Concrete-Lined Canals ... [illegible]7
- The Sorghums in Arizona ... [illegible]8
- Growing Upland Cotton in Arizona ... [illegible]
- The 1923 Cotton Survey of the Salt River Valley ... [illegible]
- The Grape Leaf hopper in Arizona ... [illegible]

An interesting booklet is published by the Hercules Powder Company, Standard Oil Building, San Francisco, entitled, "Land Development With Dynamite."

MILK INCREASES EFFICIENCY

A certain big business institution in Chicago [illegible] at 3 [illegible] every afternoon. As a result of this their [illegible] excellent [illegible] their efficiency [illegible] increased [illegible] [illegible]

Dairymen's Chance

CALIFORNIA has the opportunity of adding more than $1,000,000 to its annual income through re-stocking dairy farms depleted of cattle by the foot-and-mouth epidemic, with cows better than the average of dairy animals now in the State, according to Sam H. Greene, secretary-manager of the California Dairy Council.

Whether or not California gets this additional yearly income depends upon the bankers who will be called upon to loan money for re-stocking. Greene urges bankers to adopt a policy of loaning money only on cows free of any disease and known to be better than average producers. He suggests that bankers discuss re-stocking problems with their dairymen clients in order to reach a complete understanding as to the kind of cattle to be purchased.

"The average cow in California, while better than the average for the United States, produces only 182 pounds of fat," Greene points out. "She is an inefficient machine. A dairyman with only average cows of this sort must call upon his wife and children to labor in order that he may gain a living. To make a 'go of it' on a business basis the dairyman must have cows which will produce at least 250 pounds of butterfat a year.

"This figure of 250 pounds of fat is by no means an unreasonable one. There are 14,000 cows in Humboldt County alone which produce more than 263 pounds of butterfat a year. The average cow in Holland produces more than 250 pounds of butterfat a year. It is not at all difficult and it is economically sound for California to plan on re-stocking only with healthy dairy cows having an average productivity of more than 250 pounds of butterfat.

"In re-stocking these dairy farms, California will need about 30,000 dairy cattle. If these cows are of the 250-pound type they will return each year to California farmers $1,000,000 more in value of butterfat than a group of 30,000 average California cows."

More About Dormancy

IN a bulletin published by the California State Experiment Station 13 years ago, Prof. R. E. Smith makes the following observations about abnormal dormancy of fruit trees, a subject of present vital interest:

The trees fail to leaf out properly in the spring and seem to become confused, so to speak, as to the season. Later in the summer the trees may bloom and leaves begin to appear, but the tops usually die back nearly to the forks of the tree and sometimes the trees die entirely.

If not too badly affected, the tree sends out new sucker growth from the trunk and base of the main limbs. Plums, apricots, apples and other trees are sometimes affected.

This trouble in one which occurs mostly in the southern part of the State as a result of unseasonable climatic conditions. It is usually most pronounced in seasons when a period of warm, stimulating rains in the winter is followed by a long, cold spring.

Similar results are also produced by an abnormal, dry fall, throwing the trees into a dormant condition, followed by warm, spring-like weather accompanying the winter rains. These combinations and various others often have unfavorable effects upon trees which are accustomed to a definite resting period during the winter.

Many peculiar diseases of deciduous fruit trees, such as die-back and yellows, are no doubt contributed to by such disturbance in the normal period of dormancy.

Every few years there is usually a season, especially in the southern part of the State, when deciduous trees are badly affected in such ways as these. With peaches it is noticeable that varieties of the saucer or Peen To type are not affected in this manner, as are the Persian varieties.

Co-op Marketing Spreads

THE spread of co-operative marketing of farm products has been the most remarkable development of American business life, declares the Associated Arizona Producer.

More than 90 per cent of the dried fruits, 75 per cent of the citrus fruits, [illegible] per cent of the tobacco, 55 per cent of the nuts, 25 per cent of the milk and [illegible] and nearly 15 per cent of the cotton grown in the United States are today being marketed by [illegible] co-operative associations of the [illegible] type by a standard [illegible] for a standard purpose.

[illegible] 1,500,000 farmers who belong to these co-operative associations. [illegible] recogniz[illegible] and the effect of their [illegible] directly or [illegible] the entire [illegible]

Vegetable Profits Not Easy Money

(Continued From Page Two)

life when I entered this business 10 years ago back in Michigan. And, furthermore, I won't risk being caught with all eggs in one basket.

"After seven years in California I have reached the conclusion that truck farming is just as hard work here as in the Middle West but here we have a year-round season, and we are sure of something to show for the work; hence I'm perfectly satisfied with California.

"One doesn't mind hard labor when Nature and market conditions are favorable, but it is a discouraging game in a country where the land lies idle half the year and where living conditions are not the best. Here one has the feeling that if a man doesn't make good it is because he fails to take advantage of the opportunities all around him.

"The pest problem is not so acute here, either. We treat our cabbage and cauliflower with nicotine dust, and this is about the only spraying we do. We are not troubled with potato bugs, and although the nematodes cause some trouble, we meet that problem by rotation."

RAISING THE WRONG CROP

Asked to name the most common mistake made by inexperienced truck farmers, Swoboda gave first place to unfortunate choice of crops. "The crop should fit soil and climatic conditions," he said. "I would not think of raising cabbage and cauliflower on this light soil, which is better suited to potatoes. I have some heavier clay where my young orchard is developing, and lately I have had good success planting my fall crops between the rows of trees. Many a gardener has gone broke trying to force a certain place to produce crops to which it was not adapted."

In addition to his vegetable business, Mr. Swoboda is planning to build up a choice wholesale trade in fancy fresh peaches and plums. He has several acres set out to two and three-year-old trees, which are doing well; meanwhile he is inter-cropping. This practice, however, will be abandoned after one more year, as the trees require more room.

It will be seen the Swoboda enterprise includes few if any undeveloped opportunities. That the cash returns are encouraging is shown by the fact that from less than 17 acres of the "home 20," the owner has averaged a cash return (commission for sales deducted) of $7000 to $9000 a year—this from less than half his total cultivated acreage.

BUT—and the word is emphasized advisedly—the expenses of operating such an enterprise are very heavy. It is necessary to buy feed for the team (no land being available for raising fodder and grain). Two men (one a Chinaman) are employed constantly, with extra help in summer, while the power bill averages $40 to $45 a month, the year around. In addition, there is the cost of operating the truck used to haul produce to the city and, of course, many incidental expenses.

In fact, it is plain the expense would eat up the profits very quickly, were it not for good management. It is only by his close attention to every detail, resulting in heavy yields of first quality products, and the most intensive use of his acreage that Swoboda has been able to get ahead so rapidly.

Were it not for the pleasure and satisfaction of developing their own place and seeing it increase in value, together with the ideal environment for bringing up the children, it is doubtful whether the Swobodas would have been willing to keep their noses to the grindstone as constantly as they have done during the past five years.

But the owner has ambitious plans for landscaping the grounds about his fine new home, improving the ranch generally, and creating an estate the value of which will not be measured entirely in money.

LOOKS TO FUTURE

That he is looking towards the future and not simply robbing the soil as so many itinerant Japanese tenants have done, is shown also by Swoboda's careful soil management, which includes plowing under of cover crops and regular rotation.

Sweet corn holds quite a prominent place in the system, although of minor importance in cash returns. However, the El Cajon producer has developed a strain of corn of his own which already has attracted considerable attention and bids fair to become one of his most profitable assets. He started years ago in Michigan with Early Yellow Flint field corn, crossed by hand pollination with White Dent for hardiness.

The resultant hybrid was crossed with Oregon Evergreen corn for three years. The final development was a type of great hardiness, good size and high quality, which is ready for the market in June or July, when prices are highest.

All in all, Swoboda is proving himself a leader in his line and he entertains many visitors high in vegetable producing and marketing circles, who call to observe his methods. One man who visited the place was very much interested in the Japanese exclusion law.

"Doesn't this mean the greatest opportunity you and other white vegetable growers have ever had?" the caller inquired. "Won't the price of produce soar when the Japs all get out of the game?"

"Well, that depends," was Swoboda's laconic reply, as he continued his work of setting out sweet potato plants. "Perhaps we'll benefit—if they really get out. But will the law be enforced or will the Japs wriggle around it?"

Swoboda's faithful Chinese "hand," who had been an interested listener, shrugged his shoulders and raised his hoe to attack savagely a small but tenacious weed.

Time will furnish the answer.

Protestant Churches Provide Boys' Farm

HEALTHFUL farm work and outdoor recreation form the basis of the plan for training wayward boys at Pacific Lodge, Spadra (Los Angeles County).

This institution, consisting of well-equipped buildings and 60 acres of land, is leased from the State by the Protestant Welfare Association, organized last year to care for boys coming under the jurisdiction of the Juvenile Court.

Last year more than 3000 boys and girls came before the courts of Los Angeles County. Many of these were unfortunates; not inherently bad.

Jewish and Catholic churches had excellent welfare organizations to which the Juvenile Court could turn over those who had affiliations with these bodies. But Protestants found themselves lacking in such provision. Whereupon the Protestant Welfare Association was organized to care for boys, 10 to 15 years of age, the majority thus far accepted being 12 to 14. They are such as do not justify the severe discipline of the reform school.

The organization conducts a combined home, school, church and farm. Nearly 50 boys now are enjoying its care and training.

Half the day the boys are given public school training and the other half is spent on the farm, planting, cultivating and harvesting. The belief is that the healing powers of mother earth with other influences will come into the lives of the boys and help to remedy defects of heredity or environment that threaten to make them a burden to the State unless checked early.

After a few days there the boys seem really to enjoy the freedom and the work of the farm. They are placed upon honor, sent out in groups to different parts of the farm and to different kinds of work, often under the captaincy or foremanship of one of their own number.

They have their fun, too, including social events. They coin their humor into nicknames for the foremen who are taken from among the boys. The head laundry boy is dubbed "The Chink;" the head of the fire drill "The Chief;" and the boy who goes with officials to talk before public gatherings is "The Professor."—HENRY QUICKENDEN.

These Bugs Not Ladybirds

"WILL you please tell me," writes Mrs. E. P. Folsom of San Mateo, "what to do for ladybugs, both red and green. I don't know whether the green bug is a real ladybird, but quite similar. They are eating up my pansies and are unusually numerous this year. The green ones are very numerous on dahlia leaves."

No doubt the beetles which are feeding on your pansies are a common species which we call Diabrotica soror. This insect, because of its similarity to the ladybird beetle, is very often mistaken for the latter.

Ladybird beetles as a rule are beneficial, in that they feed on destructive forms of insect life. There are two or three injurious species which do not occur in California.

The Diabrotica which you have described is rather hard to control but partial control, at least, may be brought about by the application of arsenate of lead paste, at the strength of three pounds to 50 gallons of water, or arsenate of lead powder at the strength of one and one-half pounds to 50 gallons of water.

These are the ordinary strengths of these materials as used in orchard work and of course, as you are mixing up smaller amounts they should be used in the same proportions.—GEO. T. WELDON

(He took a correspondence course in agriculture.)

His Nobs—"I believe the Boss has been drinking!"

Fellow Worker—"Why?"

H. N.—"He told me to grease the fifth wheel on my wagon and any sober man could see it has only four."

One Milk Middleman

THERE is only one step in the milk industry between the producer and the consumer, that step being represented by the milk dealer, and he is regarded as absolutely essential. No food product is handled with such dispatch and through so few hands as milk. Most all other foods pass through half a dozen or more different middle men.

For example, follow a can of tomatoes from the producer to the consumer and you will find, first of all, there is the producer:

Second, the canner; third, the broker; fourth, the wholesaler; fifth, the jobber; sixth, the retailer; seventh comes the consumer.

BEAUTIFUL NEW SUIT DRESS

of Long wear **Serge $3.98**

Rich Gold and Silk Braided

Without question the style hit of the season! Taking country by storm! Clever new Parisian style Suit Dress, so designed that coat can easily be detached and skirt worn separately. The price is almost unbelievable, but we mean it! For a short time only is this offer made to bring us a host of new friends. Get your order onto the first Chicago train

Send No Money

Fashioned from the famous long-wear Gabardine weave Serge, always looks beautiful and wears splendidly. Elaborately embellished with finest artistically arranged silk and gold braid. This elegant braiding extends clear around bottom of coat and cuffs and also on vestee. Charming silky Venetian collar with pretty silk tie with decorative end tips. Wonderfully tailored throughout—your friends will think you paid several times this sale price.

Send name, size and color—no money now. Pay only on arrival $3.98 and postage. After try on, if you don't think it the best buy of your lifetime your money comes back quick and without question.

COLORS: Navy Blue or Brown. SIZES: Women's 32 to 46 bust; Misses' 14 to 22 years.

INTERNATIONAL MAIL ORDER CO.
Dept. B-1779 Chicago

USED PIPE and CASING

for Irrigation Purposes

All sizes in stock

Standard and Screw Casing

PACIFIC PIPE CO.

203 Howard Street
San Francisco California

MONEY IN GRAIN

$12.50 buys guarantee option on 10,000 bushels of wheat or corn. *No Further Risk.* A movement of 5c from option price gives you an opportunity to take $500; 4c $400; 3c, $300, etc. WRITE TODAY FOR PARTICULARS and FREE MARKET LETTER.

Investors Daily Guide, S. W. Branch, Dept. 39
1016 Baltimore Ave., Kansas City, Mo.

I pay the Freight

Red Top Steel Fence Posts and Farm Fencing

Harry Bayliss

FREE FENCE Catalog

4 Pacific Finance Bldg.
477 Dietzel Bldg. [illegible]

ARE YOU ONE

of [illegible] who have answered our advertisement offering you exceptional prices on Don Fernando cigars? If you are, you know we back up everything we say about giving you the very finest clear Havanna cigars for the least money. If you have not ordered we want a chance to prove to you it pays to buy from us direct.

Send Just $1

with this advertisement and we will mail you prepaid a trial box of

10 Don Fernandos

(Clear Havana, 2 for 25c Size.)

Smoke two, and if you do not think these cigars are all we claim, return the other eight and we will refund your dollar.

This offer is only open for a limited time. Take advantake of it *at once*. Put this ad and a dollar bill in an envelope addressed to

C. CORUGEDO & CO.
227 North Los Angeles Street
Los Angeles

MOST REMARKABLE OFFER

"Little Wonder" FIELD and OPERA Glass $1.75 only

BEAUTIFULLY NICKEL PLATED

Here is one of the most beautiful and finest quality Field and Opera GLASS, at a price that when buying somewhere else you will have to pay 3 or 4 times as much. We guarantee the price to be the lowest in the U. S., because we imported them ourselves, and are offering them to you at practically a fraction of its actual worth.

This glass is beautifully finished, all metal parts nickel plated; covered with fine quality imitation leather, is 3½ inches extended and 2½ inches when closed, and is equipped with powerful lenses, which will enable you to see objects miles away. Most useful for camping, hunting or distinguishing livestock out in the pasture. Use it also as an opera glass for movies or opera. Comes in a beautiful plush-lined presentation case. Special advertising price $1.75, while supply lasts.

SEND NO MONEY. Pay postman $1.75 plus postage on delivery. Money refunded if not satisfied.

AMERICAN BARGAIN HOUSE, Dept. B36
79 Fourth Avenue New York, N. Y.

Remnant Sale

18 YDS. $1.98

Big Bundle

Too good to be true? Yet we mean it! Great big **18-Yard Bundle** for only $1.98 during this sale! Hurry! Hurry! You may be too late! This offer might be withdrawn any time. Contains such materials as **Ginghams, Percales, Chambrays, Hollands, Voiles, Scrims, Toweling and Organdies—no piece less than 2 yards.** Selection must be left to us.

Send No Money Pay on arrival only $1.98 and postage. Satisfaction Guaranteed.

We prepay postage if you send cash with order.

INTERNATIONAL MAIL ORDER CO.
Dept. K-1879, CHICAGO

Please Mention ORCHARD and FARM When Answering Advertisements

What About F.O.B. Auction Selling?

(Continued From Page Three)

guide himself from day to day in connection with his shipments and he is not put in the position of having to wait for weeks to find out the price at which his fruit sold after being delivered and offered in the consignment markets.

"In our judgment the plan of selling through f. o. b. auctions should be encouraged."

E. C. MERRITT

Manager Sebastopol Apple Growers' Union

"The position of the f. o. b. auction in the distribution of food products has not yet been definitely established. There is considerable difference of opinion as to whether or not it will work to the advantage of the industry as a whole.

"When supplies are limited and buying demand is consequently active, this system should show excellent results. Under normal conditions, however, we believe the tendency is towards lower prices. If there were an established market for a product, on regular terms—with inspection and payment at destination a buyer naturally would offer a lower price where he had to pay cash for goods only two or three days in transit, with a certain risk that quality at time of delivery might not hold up to inspection certificate issued at point of shipment.

"Another objection is that the shipper loses control of distribution.

"Our organization last year sold fifteen cars of apples through f. o. b. auction. Six of these cars were well taken care of, but the other nine were diverted to a market which already was pretty well supplied. The final result naturally was to our disadvantage."

J. L. NAGLE

Manager California Fruit Exchange, San Francisco

"The California Fruit Exchange always has stood firmly for the delivered or price arrival basis of selling, handling its output through its own salaried agents to the wholesale trade on arrival at destination.

"The f. o. b. California sale is a speculative sale. The Eastern buyer, whether personally represented in California or not, who attempts to buy a grower's product on a f. o. b. price made at the shipping point is doing it for but one purpose—speculation. Such a buyer always anticipates a rise in the market sufficient to pay him a nice profit. Otherwise, he would not be interested.

"The f. o. b. California sale absolutely prevents, in so far as it operates, any attempt to distribute equitably the grape crop, or any other crop. Commodities sold through f. o. b. auction companies immediately pass into the hands of the purchasers, control of distribution is lost and these cars usually end in the delivered auctions where congestion is already heavy and where they clog the channels of distribution.

"At certain times and on certain commodities f. o. b. sales in the perishable industry may be of advantage. In the case of goods which may be placed in storage and held over periods of time, such as Emperor grapes, pears and other like commodities, there is no established market based on consumer demand at the time the goods are moved to Eastern centers of consumption. On this class of goods f. o. b. sales often are practical and advantageous.

"An analysis of the rise and fall in the volume of f. o. b. sales will show that when the market in the East is advancing, there is always plenty of inquiry for California products on a California price basis, but should the market show any signs of weakening the ardor of the f. o. b. buyer immediately declines, the volume of sales decreases and the grower is left 'holding the sack.'"

(Editor's Note—The foregoing opinion is endorsed by Robert W. Hodgson, Assistant Professor of Sub-tropical Horticulture, University of California, formerly Los Angeles County farm adviser.)

C. C. TEAGUE

President California Fruit Growers' Exchange

"In my judgment the development of cash California auctions is not in the interest of the producer. Just to the extent that this selling plan develops does the growers' co-operative organization lose control of distribution. If any great proportion of the buyers of California products were buying by this method the result would be the complete demoralization of our markets.

"The situation is bad enough when so many grower-shippers and packer-shippers are attempting to distribute California products, each without knowledge of what the other is doing, but if wholesale and retail buyers and brokers were added the situation would be unthinkable.

"The California Fruit Growers' Exchange has demonstrated to its satisfaction that the system of selling perishable products which brings the most money to the grower—and in the long run gives the best satisfaction to the trade—is the price-on-arrival system.

"It is only by the development of a properly handled growers' co-operative marketing organization, such as ours, that the problems of a great agricultural industry can be met and solved. Such an association, if it controls a large percentage of the industry, can through national advertising and dealer service so increase consumption that frequently what appears to be overproduction disappears.

"By the elimination of speculation and proper distribution, markets are stabilized and dealers can afford to sell on lower margins. By selling a large volume of fruit, costs are reduced.

"If California's products were sold by the cash-California-auction plan the business would be placed upon an entirely speculative basis. In times of short crops and advancing markets, buyers would be abundant but when crops were large and markets falling, dealers would not buy, except on their own terms. Every large dealer would feel that he would have to have a resident in every auction to look after his interests and make his purchases, thus increasing the cost. There would be so many factors in the distribution that it could not be orderly; gluts and famines would result and the business would not be satisfactory to either the grower or the jobber.

"In my judgment no greater fallacy ever was offered to the producers of California than the cash-California-auction plan. It seeks with a little quick money to lead growers away from the support of the co-operative organizations which are the salvation of their business and upon which their land values depend."

(Editor's Note—E. G. Dezell, manager California Fruit Growers' Exchange, endorses the above statements.)

Americans Will Beat Japs

THE replacement of the Japanese coolie by the American farmer naturally will result in a greater use of labor saving machinery. It is very unlikely that the white man will care to work as long or as hard as the Jap has labored.

The readjustment which is now taking place will not result in a lack of vegetables. The American farmer is merely stepping into his own rightful place and it is safe to say that he will do the job better and more in accord with our American standards and ideals.—F. H. ERNST, Extension Service.

The U. S. Forest Service is authority for the statement that about 80 per cent of all forest fires in the United States are caused by human carelessness and are therefore preventable by the exercise of reasonable care.

Know Your CALIFORNIA

Little Journeys Into Agricultural Districts

(Editor's Note—[illegible] agricultural communities [illegible] of the State will be [illegible] one under this heading [illegible] with [illegible] production or agriculture [illegible] acquainted with your California [illegible] and delights [illegible] ORCHARD and FARM [illegible] affirmative [illegible] journeys.)

CONTRA COSTA COUNTY

LOCATED just across the bay from San Francisco, is one of the [illegible] counties of the State. Contra Costa [illegible] but it is first in the value of its manufactured products and among the most important in fruit and vegetable production and in stock raising.

This striking situation is [illegible] its strategic position [illegible] both geographical location and climate—a position which has made [illegible] commercial and agricultural development natural and inevitable.

Its gigantic industries together with the agricultural development have given Contra Costa County the greatest per capita wealth of any county in the United States, a rate of $[illegible] the next nearest county [illegible] rate of $3300.

Situated between the coast and the interior valleys, Contra Costa County has varying types of [illegible] the farming districts is found [illegible] deep, rich alluvial, with a [illegible] the foothills to iron impregnated [illegible] advantageous in vegetable and [illegible] growing. Both are highly productive.

Contra Costa County's climate varies from the sea coast temperature opposite the Golden Gate, to an orange growing climate in the sheltered valleys far up the bay. Mild but not enervating, the climate is ideal for both comfort and productiveness. There are no dangerous extremes.

The rainfall averages about [illegible] inches a year; most crops are grown without irrigation. About 70 per cent of the land is hills and mountains so there is plenty of wooded waterfall.

The county is third in the State in almond production, having [illegible] acres. There are large crops also of grapes, walnuts, peaches, apricots, prunes and olives.

Contra Costa cannot be excelled [illegible] Bartlett years. They are not only exceptional in quality but also in quantity per acre and they ripen earlier than pears of other sections. They grow in non-irrigated orchards and remain fresh for a long time in Eastern markets. Blight is practically unknown.

Long experimental work by some of the progressive orchardists has developed an unusually high grade cherry and the county has first place in the quality of this fruit. The first cherries on the market usually come from Contra Costa County.

The Concord walnut, originated in this county, produces a nut of fine flavor and is a dependable bearer. Prunes long have been one of the [illegible] and profitable crops of the county and practically any fruit known to California may be grown with success.

Martinez being the county seat of Contra Costa County might well be termed the hub of this productive and industrial county. For further information write Secretary of Martinez Chamber of Commerce, Martinez, California.

Forest Fire Don'ts

SOME of the "DON'TS" [illegible] cated by the Forest Service, U. S. Department of Agriculture, are as follows.

Don't leave a camp fire unwatered.

Don't build a camp fire near underbrush or in the midst of dry leaves and "slash."

Don't ever drop a match without first making sure it is out and [illegible] breaking it in pieces.

Don't knock the ashes from your pipe, cigar or cigarette without stepping on them and grinding them into the earth.

Don't throw inflammable [illegible] from your automobile.

Don't fail to keep an eye out for the person who endangers your forests and your lives by doing things which are liable to cause fires.

Don't fail to report all [illegible] persons to the Forest officers [illegible] you would any other [illegible]

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Absorbing Shocks on Poultry Success Highway

Don't Expect Easy Riding, Warns Sonoma County Producer Who Has Traveled Far

"FOLKS who think that if everything else fails they can settle down on a few acres and go into the poultry business don't know much about the game and stand a poor chance of making good," says T. E. Callahan of Gigerich and Callahan, Sonoma, California. Callahan and A. J. Gigerich, his brother-in-law, are partners on a four-acre Leghorn breeding ranch and hatchery, and what T. E. Callahan says ought to carry some weight, for his conclusions come after fourteen years of hard work and many ups and downs.—*The Editor.*

By WILLIAM REYNOLDS BUTLER

[illegible] telling his story T. E. Callahan does not minimize the "downs" that have accompanied the "ups" of his poultry enterprise. Nor does he boast of any outstanding success even now when most of his neighbors consider the G and C. Ranch one of the [illegible] in the district.

Until these men bought their Sonoma Valley ranch they had been engaged in business in large cities. Callahan for more than thirty years lived in San Francisco and Gigerich spent thirty active years in New York City. With them however, it was not a case of two broken-down city men trying the poultry business as a last resort; they were seeking a congenial place to spend the balance of their days, "far from the madding crowd."

Neither knew much of the poultry game and both were wise enough to know there was more to successful poultry farming than merely tossing feed to hens and then gathering eggs by the basketful.

In the summer of 1909 they pitched their tents on their newly acquired ranch. Some 300 old fruit trees—apples, pears and apricots—sadly neglected, afforded shade and little else. Not a shed or shack was on the place. A home, poultry houses, brooder houses, hatchery and other buildings had to be built.

It is difficult to believe the neat, attractive home and other buildings are the actual results of the carpentry of two men who never had used carpenter's tools before. They represent the slow patient work of two pioneers who let no obstacles stand in the way of fulfilling their hearts' desire.

Callahan chuckles now as he recites how slowly things shaped themselves and what ridiculous mistakes their inexperience led them into. And now that there seems little left to desire in the way of a happy home for Mr. and Mrs. Gigerich and the latter's brother, and it appears that they have finally "arrived," we find Mr. Callahan telling of plans for 1928.

FLOCK IMPROVES STEADILY

"Since we joined the Sonoma County Accredited Hatcheries in 1923 we have been steadily seeking further improvement in our breeding flock and by 1928 we hope to be able to sell chicks of 'A.A.A' grade only." As you read through the inspiring story of the success of these two men, as Mr. Callahan recalled it to the writer, you will see that this urge for something better has been the secret of the success which they have attained thus far.

"We started in the poultry business with three small incubators, buying eggs from the best breeding flocks," said Callahan. "We were greenhorns and it seemed we had to learn a lot from experience. However, we never allowed ourselves to make the same mistake twice and we were willing to learn from the other fellow whenever we had a chance.

"Many factors, we found, limited our success in the earlier years. In the winter we had big losses from colds and roup. We never experienced 'pox' except through good luck than good management I guess.

"Like most poultrymen we found we attempted to carry too many chicks in the brooder house and wintered too many hens for the size of our house. But with we came to full realization of the evils of overcrowding our success was marked.

"The period from 1909 to 1914 was a [illegible] for many [illegible] through [illegible] of feed, [illegible] management, breeding and developing. In the summer of 1914 every bird was sold and the yards purified. Better ventilation was provided. A fresh start with the flock, reduced from 2200 hens to around 1400 to 1600, insured against further losses from overcrowding.

Note the look of satisfaction on the face of T. E. Callahan as he looks over his thrifty flock of White Leghorns.

Big losses and poor thrift in pullets were traced to crowding 1500 chicks onto a brooder floor of 360 square feet. Callahan estimates losses from overcrowding in the brooder house ran from 20 to 30 per cent. Since they have been brooding half the number of chicks on the same 360 square feet of floor space, losses seldom have run as high as 10 per cent.

Not only has this method cut down mortality but also the thrift in pullets has been most noticeable. So thoroughly has this point been brought home to Callahan that he refuses to allow a patron of the hatchery to take more chicks than he has room for. If a patron wants 3000 chicks and only has brooder capacity for 2000, then 2000 is all Callahan will sell him. When asked if he didn't hatch them to sell he replies that he's after results for his clients as well as himself.

During the first week in the brooder house the thermometer at the edge of the hover is kept at 95 degrees. After the first week the temperature is tapered off at the rate of 5 degrees each week until the temperature in the brooder house is about the same as that outside. Callahan believes in plenty of fresh air for chicks and windows are kept open except on stormy days. Whenever weather permits the chicks have access to a large, well-drained yard.

These men have tried many kinds of chick feed and mash, but they have secured best results from the commercial feeds that were guaranteed by responsible millers. Plenty of green feed, cut fine, is one prime essential in raising baby chicks, according to the G. and C. Ranch owners.

The success this ranch has attained in growing vigorous pullets also is traceable to the practice of allowing plenty of floor space in the brooder house as well as to the plan of placing the pullets at the age of eight weeks in small houses and lots. Some of the houses receive 112 pullets; smaller buildings quarter twenty-five birds. Callahan says that in two weeks a notable difference is manifested in the thrift of the pullets after they are placed in such small groups and in fresh lots. This, he claims, is the secret of pullet health.

At the age of six weeks, while still in the brooder house, they are changed gradually from the baby chick mash and baby chick scratch to pullet mash and pullet scratch. The latter feeds are given until the pullets are around sixteen weeks old, when they are gradually worked into a dependable, commercial laying mash. G. and C. Ranch has always found it more profitable to feed mash dry, finding that fewer digestive troubles are evident when this practice is adhered to.

At five and one-half months of age the pullets are rigidly culled and placed in the laying house. During the month of September the older birds are culled and the breeding stock is kept at between 1000 and 1100 birds.

The breeding flock is largely of the Hanson and Wyckoff strains. Plenty of range is provided. The soil in the laying pens is sandy and well drained, so that at no time are they muddy. Every precaution is taken to insure sanitation of the houses and runs.

DECRIES HOME MIXING

Since 1911 the hatchery of twenty-five machines with a total capacity of 14,000 eggs has been a success. The G. and C. Ranch hatches only from its own breding flocks. Mr. Callahan was a home-mixer of mash and scratch feeds until he found that time was too precious with the large amount of detail work attached to tending the breeding flock, brooder house and hatchery to spend in mixing feed.

"Home mixing," says Callahan, "is a haphazard practice at best. Since we tried mill-mixed feeds we find we get a better yearly average egg production and 4 per cent lower mortality than with our home-mixed feeds. Last year we felt that in the slack season perhaps we could afford to go back to home mixing. We kept this up until the busy season was upon us and then we went back to commercial mixtures. Our records show we got 12 per cent more eggs from 200 fewer hens (removed by culling) than we had been obtaining on our own mash."

Summing up their success in the breeding and hatching business Callahan says: "The poultry business is no place for a down-and-outer or one with broken health. There's hard work to be done. It requires strict attention, too, and unless one is willing to stand this confining life and stay with it through thick and thin, and organizes his business so that he can boss it instead of having the job boss him, he'd better stay out of the game.

Ample range and orchard shade are considered essential factors in hen health by these Sonoma breeders

"Both my brother-in-law and I have found contentment here, and so has my sister. We have a comfortable home and a satisfactory living, and are able to lay aside a small profit each year. I feel we all are doing better in this business than at any other we might have entered."

Through the Camera's Eye

Poultry Producers Make Retail Deliveries, Blazing New Trails in Selling

"WE NOW have five service trucks making daily deliveries of our Calawhite cartoned eggs direct to the consumer," proudly report officials of the Poultry Producers of Southern California, Inc. "Each truck operator is his own solicitor, furnished with a varied line of printed matter setting forth the merits of our product and explaining our method of distribution. We are blazing a new trail and have to educate our public to a new method of supplying them with one of nature's best food products, and it will take time to demonstrate that we can "deliver the goods" and will be able to continue to do so throughout the entire year."

As each driver secures a growing list of regular customers it enables him to consolidate his district and extend his calls over a larger area, visiting the different sections on different days. Salesmen now are supplied with script books, containing $5 worth of coupons, which customers can purchase and thus be enabled to leave an order for eggs in case they are not going to be at home.

When the trucks had been in operation less than two months, the drivers had increased their sales more than 100 per cent over the first 15-day period.

Vision and courage were required to tackle the job of conquering this desert. Photograph above shows a part of the famous Yuma Mesa of Arizona as it looked before the magic touch of water and pioneer enterprise had transformed it.

Many farm kiddies have started bank accounts with the proceeds of orphan lambs, bottle raised at the expense of much patience. Here's a husky Napa County example!

The Rev. George A. Hartman, State Chaplain of the American Legion and pastor of El Centro Presbyterian Church, earned the everlasting gratitude of Imperial Valley farmers by his masterful presentation of irrigation needs before Congress.

And presto! Here is a tract of similar soil after thriving orchards had displaced desert plants. Thousands of acres of virgin land in Arizona remain to be awakened to production with the completion of Colorado River projects now under consideration.

This simple, home-made plank drag weighted with old iron wheels is considered indispensable on the Swoboda vegetable ranch, San Diego County. It "fines" the soil prior to planting. The boys are waiting for a chance to get a ride!

This is the method used by John Swoboda to irrigate his fields. The movable metal trough is equipped with adjustable outlets. It may be set near any desired standpipe.

ORCHARD and FARM

JULY 6, 1924

Why Petaluma Leads World Poultry Production

Achievements Challenge Comparison

EIGHTEEN MILLION dollars' worth of Petaluma poultry products sold in one year! Bank deposits—in a country town of 7000 population—$16,000,000! Four hundred tons of feed (two solid train loads) sold and fed every day! Four thousand poultrymen! Six million chickens! Twelve million baby chicks hatched annually! Thirty-two million dozen eggs sold every year!—*The Editor.*

By O. H. BARNHILL

WHAT are the conditions which have made it possible to build up Petaluma's stupendous poultry industry? Has success been due to natural advantages or human ability? Both. Petaluma has what might be called a strategic location, as far as the chicken business is concerned. With both water and rail transportation, located on tidewater within striking distance of San Francisco and the great grain fields of the Sacramento and San Joaquin Valleys, this favored community is able to empty her egg basket to advantage and bring it back full of fine, cheap feed. In other words, it has first-class facilities for selling finished products and buying raw materials for egg factories.

True, the bulk of Petaluma eggs go East, but several transcontinental railroads converge to San Francisco Bay, a short distance south, which is a great advantage in long distance shipping. Furthermore, half or more of these eggs are handled by one of the best co-operative marketing association in the country.

"Petaluma" and "poultry" have come to be almost synonymous terms, so closely are they associated in the minds of American people. A fortunate combination of natural advantages and community enterprise has made this district the "world's egg basket." Most everybody here thinks, talks and eats eggs, while fried chicken is a staple article of diet.

Above—One of the many fine country homes built with poultry profits. In some neighborhoods the houses are so close together that city conditions prevail. Right, one day's "eggsperience."

Above—H. W. Kerrigan, Petaluma's Chamber of Commerce secretary, selling baby chicks. Right—Boatload of San Francisco oyster shells.

What about the other half? Well, the owners of independent eggs reap most of the advantages of the market built up and sustained by the association, even if they don't contribute anything to its support, is the view of the "insiders." This is only one of the many instances where the good co-operator holds the umbrella which protects the outsider from low price rain and hail.

Returning to Petaluma's natural advantages, the visitor finds this chicken city set in the midst of a gently rolling plain, well watered and well drained, with almost every favorable slope and eminence covered with cackling white hens, each one bent on doing her bit towards filling "the world's egg basket." That's what Petaluma calls herself and with good reason, for more eggs are produced here than anywhere else on earth.

The climate is mild and equable, rainfall moderate, sunshine abundant and not too ardent. Feather-ruffling winds are infrequent, the soil light and sandy. True, there is plenty of adobe, gumbo and black sticky soil in the level bottom land which borders Petaluma Creek, nearby, but poultrymen generally avoid this low ground and seek higher, drier locations.

PIONEERS BLAZE TRAIL

All these points are important, as poultry raisers have learned who located in other less favored districts. But even where nature has done her part the agricultural battle is only half won. Man must do his share, utilizing favorable circumstances to the best advantage.

Have Petaluma poultrymen done this? Only to a certain degree. Their success, while prodigious, is by no means all it could or should be. Volume of business is not everything, although if the chicken men in this district were not making real money their business would never have grown to its present proportions.

Petaluma is not only the largest poultry community in the world, but one of the oldest commercial egg centers in the United States. Those who blazed the trail which led to present conspicuous success were real pioneers. L. C. Byce in 1864—sixty years ago—built here the first successful incubator and still is engaged in that work. He is a fine old English gentleman of whose modest factory the city is justly proud.

Walter Hogan, another Petaluma pioneer, developed a system of culling hens which has been an important factor in building up high producing flocks. There were others. But with all the progress Petaluma has made in the poultry industry, she is only now waking up to the fact that there are younger communities which are enjoying greater success along some lines.

Old communities labor under certain disadvantages, being apt to fall into ruts of established methods. New districts, unhampered by precedent, are more likely to evolve and adopt improved practices. This has been especially true with reference to heavy laying strains of chickens. Oregon breeders have made their California competitors sit up and take notice of the 300 egg hens, which have set new records in flock averages and individual production. But (Continued on Page [illegible])

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
JULY 6, 1924

Dezell Discusses Several Citricultural Problems

Interesting Views on Price Fixing, Marketing Methods and Orchard "Trustification" by Manager California Fruit Growers' Exchange

By O. H. BARNHILL

DURING the present low price period for oranges, lemons and grapefruit the entire citrus fruit industry is being studied as never before, in an effort to find out if it cannot be reorganized and placed upon a more profitable basis. The views of E. G. Dezell, manager California Fruit Growers' Exchange, upon some phases of this subject are of peculiar interest and value, because they reflect the sentiment and policy of those who, more than any other persons, control the destinies of California's citrus fruit growers.

There is a general impression that all Sunkist sales are made direct by the manager of the Exchange. This is not the case. Each local packing house association reserves the right to ship when and where its manager wishes and to set a minimum price on its fruit. The Exchange does not hold any legal whip over its members to compel them to do the bidding of its general manager or directors' committee.

"Co-operation is the essence of the Sunkist organization," asserts Dezell. "Each member and local manager realizes that only by co-ordinating his efforts with those put forth by other growers and packers can the best results be secured.

HOW SHIPPERS CO-OPERATE

"An Exchange shipper knows that if he fails to ship his quota of fruit he likely will lose an opportunity to market part of his product; if he ships more than his share he will help glut the market and lower prices; if he asks too much for his fruit it won't sell and ultimately he will be forced to reduce his prices to the current market level."

These are some of the considerations which hold the Sunkist organization together and enable it to function advantageously. With complete information in the hands of all shippers they generally reach the same conclusions as to the total quantities of fruit that should go forward from time to time. Where local conditions necessitate certain districts at times ship more or less than their share of fruit. Other districts adjust their operations, if possible, so as to keep a full supply moving, but within the probable demand.

Florida has been a disturbing factor in the citrus market, because only one-third of the growers have been organized. Shippers in that State and in California exchange information as to total supplies, but with a large number of operators in Florida there has been no way of guiding the total movement of fruit.

"Our Eastern competitors have had such a disastrous shipping season they at last realize the necessity of greater co-operation and co-ordination of marketing methods," relates Dezell. "A recent drive enlarged the membership of the Florida Citrus Exchange until now it embraces 60 per cent of the producers in that State. Doubtless this increased co-operation will result in better selling conditions next season.

"Marketing farm crops, after all, is largely a matter of distribution—supplying all markets with the proper quantities at the right time."

Many persons consider the use of private brands both unwise and unjust, in so far as co-operative marketing associations are concerned. It is contended that this plan enables some growers and districts to take advantage of the market and secure better prices than others, which is unfair to the latter.

"All fruits and vegetables are graded uniformly, according to size and quality," objectors point out, "therefore growers who produce a superior article and put up a meritorious pack will receive a price commensurate with the intrinsic value of the product. What right have they to expect more? Any additional advantages, which may accrue on account of the reputation of some particular brand or because the product was grown in a favored locality, should be enjoyed by the entire organization, since the purpose of a co-operative association is to benefit the entire membership."

E. G. Dezell, Manager California Fruit Growers' Exchange

This point involves one of the vital principles of co-operation. One of the chief objections to mutual marketing systems is that the individual surrenders any advantage he may have gained by the exercise of superior ability and good judgment in growing, packing and marketing a crop.

Some successful farmers claim they are used by co-operatives as props to bolster up indolent and inefficient neighbors. They admit the latter are benefited by joining such an association, but claim "going it alone" is the only way an efficient operator can receive all the rewards of his individual efforts.

INDIVIDUAL IS REWARDED

This is an erroneous viewpoint, because a true co-operative is not a commune in which all are rewarded alike, regardless of individual merit and effort. Rather, it helps each member to obtain his just dues, in proportion to his efficiency and industry.

As Dezell points out, any advantage which a grower or community may enjoy as a result of natural advantages or efficiency in production, packing and marketing should not be surrendered because of membership in a co-operative. Furthermore, it is impossible to grade some crops from different localities in such a manner that all will be of uniform quality.

There are several reasons why this is true. In the first place, variations in soil and climate produce different types of farm crops; diverse cultural practices have a like result; finally the operation of different packing houses may be based on different standards, therefore, their product is not uniform.

Because of these conditions private labels, in addition to the co-operative trade mark, are necessary in order to do justice to the product of each grower and local association.

"What about (Continued on Page 10)

There's No Town and Country Conflict in Orange County

Ideal Relationship Between Chamber of Commerce and Farm Bureau Described—Plans for Future

WHERE does the town end and the country begin?

Well may the visitor to many California communities ask that question! John Farmer's poultry "ranch" may be but a few blocks from George Cityman's bank or store.

The paved highway leading to the more distant country district is but a continuation of "Main Street."

At one big union school, Farmer's and Cityman's children mingle daily; ten miles "out," the farm house hears a number upon a named road; Mrs. Cityman and Mrs. Farmer belong to the same club and pattern their frocks after the same style books.

It is no wonder, [illegible] that the question of town and country relationship looms large in [illegible] In a recent article, some [illegible] were pointed [illegible] of harmonious co- [illegible]

[illegible] District and Orange [illegible] were mentioned as typical [illegible] of [illegible] team work. Of [illegible] in the latter, [illegible] Adviser Harold Wahl- [illegible]

[illegible] the aim of this [illegible] friendly and recip- [illegible] the farmers or [illegible] county and other [illegible] the urban [illegible] felt that [illegible]

The interests of the one side are more or less dependent on the interests of the other side. In fact, **the average Orange County community is made up largely of rural people who reside in the city and operate the ranches outside.** Orange County has been primarily an agricultural county and as such it is only natural that there should be a very close and mutual relationship between the urban and rural interests.

"From the very inception of the Farm Bureau in Orange County, those responsible for its direction have continually solicited the good will of the interests represented by the individual and the Associated Chambers of Commerce. In fact, there have been numerous instances where Farm Bureau men have been directors on Chamber of Commerce boards, and vice versa. There have been many occasions for co operative effort between the two organizations as witnessed by water conservation movement, the Oriental survey, agricultural surveys, county fairs, etc.

CHAMBER AIDS FARM DRIVE

"As an example of the pleasant relationship between the Bureau and the Chamber of Commerce, one case may be cited. During the recent membership campaign of the Farm Bureau in the Orange District the Orange Chamber of Commerce assisted materially through full-page advertisements in the local paper and promoting the campaign in various other ways.

The Orange County Farm Bureau and the Agricultural Extension Service, which co-operates very closely with it, operate on the basis that one can progress further with friends than with enemies, and it is probably due to this fundamental axiom that the present good will exists."

Encouraging, isn't it? And here's what an Orange County Chamber of Commerce man says in a letter to the secretary of the local Farm Bureau:

"Dear Mr. Stanley:

"Referring to your inquiry regarding the relationship existing between the Santa Ana Chamber of Commerce and the Farm Bureau, I am glad to reply that it is most cordial and co-operative.

DISTINCTIVE FIELD FOR EACH

"There is no overlapping of efforts apparently in any particular and it is my opinion that the Farm Bureau is the representative business organization of the farmer-business man, and fills that need that the Chamber of Commerce fills for the banker, manufacturer, merchant and business man of the city.

"The Santa Ana Chamber of Commerce and the Orange County Farm Bureau have always in the past worked in perfect harmony for the good of Orange County.—JAMES C. METZGAR, Secretary."

Secretary Manager A M. Stanley, of the Farm Bureau, to whom the above letter was addressed, not only endorses these statements but also recognizes further opportunities for development:

"Through co operation with the Chamber, officials of the Farm Bureau gradually have brought about the understanding that the Farm Bureau is to handle the agricultural problems of the county while the chamber has charge of the matter of advertising the advantages of Orange County as a desirable home site.

"It is true that in some sections there are Chambers of Commerce where there is apparently no need of such an institution; where it is probable that the Farm Bureau could take care of all the local needs of that community.

"But we have found that in seeking out a new community, it is quite natural for the home seeker to apply to the Chamber of Commerce for information. That is the channel through which he has sought this information for years and it would be difficult for us to convert him to the idea of applying to the Farm Bureau for information relative to the location of a home, and therefore it is probable that even the smaller communities need a Chamber of Commerce. However, after the man is located on a farm it is then the business of the Farm Bureau to take care of his community needs.

"In some places the Chamber of Commerce and the Farm Bureau hold alternate meetings, having practically the same membership and really doing Farm Bureau work. In the larger cities, of course, the Chamber of Commerce is predominant.

"The Chamber of Commerce of this county, known as the Associated Chambers of Commerce, has invited the Farm Bureau to elect two representatives each year to sit in that body with full privileges, and at present there is a movement on foot to change the constitution and by-laws of the Farm Bureau to permit the invitation of a representative from the Chambers of Commerce to sit on the Board of Directors. By (Continued on Page 8)

COVERS CALIFORNIA COMPLETELY
MORE THAN 300,000 COPIES EVERY WEEK
(Exceeding combined circulation of all other California farm journals)

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IN addition to publishing many articles by specialists of the State Agricultural Experiment Stations and Extension Service, ORCHARD and FARM maintains an eminent staff of associate and contributing editors, including such widely-known authorities as

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE

FRIENDLY PHILOSOPHY
By THE EDITOR

NORTHWARD, HO!—This writing finds us in the beautiful Santa Clara Valley, which E. Alexander Powell, famous traveler and lecturer, described as "a sleeping maiden, intoxicatingly beautiful, lying in a carven bed formed by the mountains of Santa Cruz; curtained by fleecy clouds; her coverlet of eiderdown, tinted with rose, quilted with green, edged with yellow; her pillow, the sun-kissed waters of San Francisco Bay."

The "coverlet" is revealed upon closer inspection as an expanse of fragrant blossoms; the green tufts are the live oaks, the yellow edging, California poppies that clothe the encircling hills.

Powell has put into scintillating phrases the feeling that comes to all who visit this bit of Paradise, as well as the reverence of those loyal residents who make it their home. In fact, its very happy combination of climate and environment has brought about certain unhappy conditions from the strictly agricultural viewpoint.

THE FARM AND THE HOME—This brings up the interesting question of just how far we can go in combining ideal living conditions and agriculture on a strictly business basis.

The minute we approach the ideal home environment we find ourselves approaching also the "deadline" in overhead and operating costs. When deciduous fruit land rises above $1000 an acre in value, can it be managed on a profitable business basis over a ten-year average?

What has happened in the San Fernando Valley and other districts near Los Angeles, the Santa Clara Valley and similar sections in the Bay District, surely justifies belief in the future of our less intensively developed sections.

There is an increasing tendency towards suburban development near the big cities, where country homes can be enjoyed by city workers. More and more land, formerly devoted to commercial fruit growing, will be taken for this purpose. And the aggregate production by these "little landers" of poultry products, vegetables, fresh fruits for local markets; squabs, rabbits and other specialties, is great.

California is the goal of untold thousands of families who will settle in and near the cities; the more new residents we have, the greater the proportion of increase, for each exerts its influence to bring friends and relatives.

What, then, will be the ultimate effect upon agriculture?

FACTORYIZED FARMING—It is both dangerous and interesting to make predictions; but it is a pastime in which any of us may indulge. Let us therefore study the industrial and agricultural tendency of the present era, and see what it is likely to lead to.

In all other lines of production, the tendency is towards corporation methods of doing business. And already this is being felt in California agricultural circles. There are in this State several notable examples of success along this line.

Efficient, highly-trained business executives—each a specialist in his particular line—employed at high salaries to manage orchard and ranch properties owned by several or many stockholders, are taking the place of the farm family which combined home and business on a limited acreage.

The obvious advantage of this method makes it practically certain that more (Continued on Page 29)

WHAT'S NEW? Keeping Abreast of Agricultural Progress

Arizona Hens Make Record

THE hens in Arizona's egg-laying contest averaged 75.7 per cent production during May, which was higher than the records made by hens in nine other States reporting egg contests.

The average cost of feed per hen was 16 cents for light breeds and 19 cents for heavy varieties. Profit for the latter, counting eggs at 28 cents, was 28 cents, compared to 34 cents for light hens.

Prospects for Short Crops

PRESENT crop prospects are the poorest for 12 years, according to the United States Department of Agriculture. With the possible exception of fruits and vegetables, no crops are up to the average. Corn, wheat, oats and cotton are unusually poor. Those who contend that short crops are the best thing that can happen to the farmer, because high prices are expected to result, will this year have a good chance to test their theory.

Stockmen Prepare for Drouth

THE California Cattlemen's Association is making every effort to aid its members in carrying their stock through the present unusually dry season, according to R. M. Hagen, secretary. Available supplies of hay and cottonseed cake are being secured at the lowest possible prices and arrangements made to ship in corn and barley from other States.

The water shortage is expected to become more serious than lack of feed in the autumn. For this reason, members are urged to develop water by putting down wells and installing windmills and pumping plants, wherever practical.

Do Bees Carry Pear Blight?

A RECENT outbreak of pear blight in a Coast district is attributed to infection introduced by bees brought in for pollination purposes. A shipment of several hundred stands was said to have been traced to a section where the disease was particularly virulent.

Authorities state the blight organism will remain active in honey for as long as 30 days being then distributed by the bees to the blossoms of the fruit trees, from whence it soon travels downward into twigs and limbs.

A sudden spell of hot weather is thought to have aggravated the situation, causing the infection to go down with great rapidity.

Farm Bureau to Sell Grain

ALTHOUGH less than half the California grain crop has been signed up with the Farm Bureau Exchange, due to drouth, foot-and-mouth disease and other unfavorable conditions, the total acreage under contract has been increased 50 per cent over last season and it has been decided to continue the exchange.

Sales will continue to be made on the San Francisco and Los Angeles markets, although expenses of the organization have been cut materially, because of the short crop to be handled.

Alex Johnson, secretary, is still receiving crop contracts at the San Francisco office, 40 California street.

Propagate Earwig Parasite

PORTLAND has appropriated $500 for the construction of four insectaries in which will be propagated earwig parasites, under the direction of the Oregon State Board of Horticulture. The earwig has become such a pest in some Oregon and Washington cities that real estate prices have declined in infested districts.

This pest is reported to have been discovered in Berkeley and Los Angeles County. The State Board of Agriculture advises that there is no way of keeping earwigs out of California by inspection or quarantine regulations.

As a household pest, the earwig is said to be much worse than flies, ants and cockroaches combined and in addition is very destructive to orchard and garden crops.

Nematodes Threaten Narcissus

NEMATODES threaten the narcissus bulb growing industry of Santa Cruz County, according to R. W. Hunt, horticultural commissioner. There are 5,000,000 narcissus bulbs, valued at $125,000, in this district and other flower bulbs worth $375,000.

The nematode is a microscopic eel worm which was brought to this country from Europe and is one of the reasons for the strict plant quarantine the United States is establishing against foreign bulbs. C. Emlen Scott, State plant pathologist, is assisting Hunt in combating this pest in Santa Cruz County.

The only effective means yet found of ridding a crop of nematodes is to destroy infested plants.

Ship Seed Potatoes North

A MONTH ago California began shipping seed potatoes in car lots to the Puget Sound country, as a result of successfully treating the stock for tuber moth by vacuum fumigation. Under the direction of the State Board of Agriculture a potato fumigator was installed at Colma (San Mateo County).

This plant consists of two air-tight drums, each 25 feet long and seven feet in diameter. The vacuum pump has a capacity of 275 cubic feet of free air per minute. Daily capacity, 10 carloads.

The fumigator will handle either carbon bisulphide gas, hydrocyanic acid gas or formaldehyde, being designed to destroy fungus diseases as well as insect pests. The result is that Oregon, Washington, Utah and Montana will accept fumigated seed potatoes without field inspection.

Napa Sells Pedigreed Poultry

THE Napa County Pullet Raising Club is selling 500 selected pullets and 1000 cockerels from [illegible] nest pedigreed fowls, with records sworn to by affidavits. Each bird has a record of 200-egg production, or more, for both dam and sire, the [illegible] records being mostly above 250 eggs.

The stock is of the same strain as that [illegible] the Napa County Elementary Pullet Raising Club, which last year led in the Boys and Girls [illegible] division of the Santa Cruz Egg Laying [illegible].

Power Companies Aid Farmers

LARGELY because of representations made to the Railroad Commission by J. J. Deuel, Farm Bureau representative, committees of the latter organization have authority to decide how much electric power shall be apportioned to each farm community in Southern California the present season. In case of dispute between farmers and power companies, the latter agree to abide by the decision of the Farm Bureau committees.

On account of water shortage in generating power, the supply of electric power for a large portion of Southern California was reduced 25 per cent June 1[illegible].

Tehama Controls Pear Blight

RECENT inspection of both pear and apple trees treated for blight in the C. S. Day orchard, Dairyville district, Tehama County, by G. H. Flournoy, former horticultural inspector, two years ago showed the trees entirely free from blight, according to press reports. Flourney has been working in Rogue River Valley (Oregon) pear orchards in the vicinity of Medford, with a new blight control method which he claims is very successful.

The Day orchard was visited by D. R. Hill, Oregon orchardist, who has 100 pear trees two to seven years old which so far have proved immune to blight attacks.

Distributing Canned Goods

THERE is good prospects of the big meat packing concerns being permitted to use their distributing systems in disposing of California canned fruits and vegetables, according to Albert E. [illegible], president California Co-operative Canneries.

Armour took 50 per cent of the $4,000,000 pack of this company last year, but since 1920 has been prohibited by law from using the Armour distributing system in handling this class of goods in the United States.

An effort is being made to have the law changed and the C. C. C. has been granted the right to appear in the case before the District of Columbia Court of Appeals.

"Ripgut" New Weed Pest

OVER a wide area of forest range a tall, aggressive, tough grass called "ripgut" is taking possession of the land, according to A. W. Sampson of the University of California. At no season is the grass worthy of being called a forage plant although early in the spring it is eaten by livestock to [illegible] extent, where better feed is lacking.

About a month after growth has started the [illegible] pods begin to appear armed with needle-like [illegible] which lodge in the wool and skin of sheep and in the tongue and throat of cattle, causing untold [illegible] and sometimes death.

Ripgut is making the most headway on [illegible] overstocked ranges. The way to keep out this pest is to give the better plants a chance to thrive.

Ben Gonnadoit Says

Howdy folks! I bin intendin' t' do some writin' fer quite a while, but [illegible] on account o' my crippled foot.

It happened this way. You [illegible] when I bought this place 2[illegible] years ago th' buildings wasn't in very good shape, so I bin [illegible] 'em up f'm year t' year ever since.

Well, this spring I noticed th' foundation under th' corner of th' barn was a-crackin', so not havin' any time jest then t' fix it with cement I drove a two-by-four under th' sill.

A few days later, absent-minded, I tied my saddle-horse to th' brace. Well, somethin' scared him an' he reared back sudden like, jerkin' out th' two-by-four, an' a piece of th' wall fell on my foot.

All because of th' carelessness of th' builder in not makin' that foundation stronger in th' first place. Seems like I'm always sufferin' from other people's mistakes an' neglect.

In fact, lookin' back over my life, I find [illegible] ev'ry misfortune that has overtook me (an' believe me there's bin a plenty) has been [illegible] to other people. I admit I ain't much of a success, but how could I be when everybody has done everything possible to make me a failure?

[illegible] th' bankers who [illegible] to th' neighbors that [illegible] sued me fer [illegible] it seems like all has been in a conspiracy t' cause my ruin.

An' yet, I don't hold [illegible] bitterness [illegible] wouldn't do me no good anyway [illegible] get no money back [illegible]. But if I ever inherit a million dollars [illegible] somebody [illegible] near my place, believe me I'll get even fer a lot o' things I have suffered.

Meanwhile I keep [illegible] brotherly love an' [illegible] fer my fate.

[illegible]N GONNADOIT

Producing Perfect Pears Is Abreo's Ambition

Remarkable Results Attend Cultural Methods of This Santa Clara County Orchardist—Pruning System Approaches Perfection

WHAT cultural system has made the J. H. Morse pear ranch, near San a Clara, one of the show places of the valley? V[illegible] conditions have been responsible for the increasing yield of highest [illegible] Bartlett[illegible] culminating in a crop [illegible] than 600 tons from 75 acres [illegible] season?

I [illegible]s with these questions in mind [illegible] visited Manager M. E. Abreo [illegible] and secured the answers at [illegible] hand.

To his system of pruning, Abreo gives most of the credit for his success as a pear producer, this combined with [illegible] timely irrigation and thorough spraying. And there are other factors, too, all of which were brought out as we strolled through the magnificent orchards.

"I have been at work for eight years in developing these trees according to a special plan," related the ranch manager. "It is not exactly the long pruning system advocated by the University, rather we treat each individual tree according to its nature and requirements. Where the 'long pruner' would let much of the new growth remain I pinch or cut it back sufficiently to bring out some of the fruit buds further back.

"We aim to have sufficient two-year-old wood at all times to bear fruit [illegible], but not at the ends of the limbs. We do no severe cutting back and remove old brush mostly from the center of the tree, our aim being to keep the center open and let the weight of the fruit draw the limbs outward and downward." The trees look very tall and "scraggly" at first, but after a season or two of heavy bearing, droop and spread.

We remarked that the older trees, already weighted (June 15th) with a tremendous crop, resembled pear trees [illegible] down according to the Caldwell system.

"Yes," Abreo agreed, "we get practically the same effect without the expense of tying, and that is considerable. We have very little breakage and do not need as many props as our neighbors, despite our heavier yield. In fact, I make it a point to not place the props until the latest possible date, in order to encourage the limbs to bend as low as possible.

SUNBURN DANGER MINIMIZED

[illegible] preponderance of low-hanging [illegible] shades the trunk and prevents [illegible] increases the yield and quality of fruit, renders picking less difficult and conserves moisture under the [illegible] according to this successful [illegible]. Growth of down-hanging fruit [illegible] side of a main [illegible] encouraged.

[illegible] there is one big disadvantage—the difficulty of cultivating [illegible]. Right here is where the "[illegible] long" method is applied. [illegible] hoes the weed into the [illegible] and the entire acreage is [illegible] but two, three [illegible] times.

[illegible] a Fairbanks [illegible] to the [illegible] on the orchard is [illegible] from the [illegible] the [illegible] fruit is picked from the ground as from the ladders.

Now as to irrigation and cultivation. Abreo believes nothing equals water—applied properly and at the right time—as a fruit producer. He gives three good irrigations at intervals of about two weeks before applying the hay mulch, then irrigates twice before picking up the mulch, and again before and after planting the cover crop. No water is applied for at least three weeks before picking. Water for the entire acreage is supplied by one seven-inch well, 500 feet deep, equipped with electrically-driven turbine pump.

Tile drains have been laid under the entire orchard, and there is over 1200 feet of pipe line for distributing the irrigation water, this being of steel well casing, rather than the usual cement.

All cultivating is done with a tractor and the usual methods are followed except in one respect: Abreo does not use a drag in connection with the harrow. On account of danger of puddling and compacting the heavy, black soil, he makes a special job of dragging several days after cultivation.

Since the soil is stirred around the trees with hoes, it is not necessary to work as close to the trunks with the implements as in most cases; in fact, the overhanging limbs make this impossible. However, using a small wheel-type machine, with long, sharp lugs or teeth, it is possible to do a remarkably clean job.

Vetch and cow-peas are used for the cover crop. An experiment in innoculating the latter did not prove very successful; at least there was no perceptible increase in yield the first year, Abreo reports.

At present, aside from green manuring, the only fertilizer used is a lime-and-sulphur compost (which also includes other ingredients) which is applied at the rate of a ton to the acre, once in five years.

It will be seen that all orchard operations on this ranch are done thoroughly. But none receives more attention than spraying. Abreo is regarded by some of his neighbors as a "crank" on this subject, and there are some who think he overdoes it. But he gets the fruit—high quality, clean fruit at that—and the trees are healthy and vigorous, which seems to be a sufficient answer to the critics.

Before describing his spraying plan, it is interesting to note that all the spraying is done with one rig—a 2½ horse power outfit with 200-gallon tank, which develops 300 pounds pressure.

Before applying the winter spray of miscible oil, Abreo washes the trees with water, applied with the full pressure, following with the oil a short time afterward, before the trees are entirely dry. One hundred per cent mealy-bug control is claimed for this orchard.

Lime sulphur (1-10) is used in the spring just as the buds break. Following this, Bordeaux is used when the clusters have started to spread. This spray is home-mixed with boiling water and applied lukewarm, according to the following formula: 3 pounds bluestone, 4 pounds lime, 1¼ pounds arsenate of lead to 50 gallons water.

For the first petal spray for codling moth, the clipper nozzle and bamboo pole are used, rather than the spray gun.

When the petals are about three-quarters off, the first arsenate of lead spray is applied at the strength of 5 pounds S. W. acid type to 200 gallons water. It takes about ten days to go over the orchard and it is Abreo's plan to start the second spraying immediately upon completing the first.

Altogether four arsenical sprayings are given, the fourth starting as a rule about the first of June. Seasonal conditions must be taken into consideration, of course; this year the trees did not bloom or leaf out until unusually late. A very heavy crop was set, however, and the manager estimates the fruit will exceed last year's yield by 200 tons.

The first experience with blight is causing a little concern, the valley having escaped the scourge until this year when it is believed to have been introduced by bees brought in from an infected district. The infection so far is slight, however, and by quick action the authorities hope to stamp it out before it becomes general. Abreo is going over the orchard several times in order to remove all infected tips.

That careful methods indeed pay dollars-and-cents profits is shown by the steadily increasing yield, which Abreo says reached the maximum last year with a crop of 600 tons, which brought an average price of $35.

Only four to six per cent of culls is the remarkably low record claimed by this producer. The careful production methods are supplemented by unusual care in handling.

Abreo provides a double set of picking buckets and has a crew of sorters who empty the buckets and sort into piles, making sure that only first grade stuff goes to the cannery. The pickers are not even allowed to empty their own buckets, this being done by the sorters, who are required to handle the fruit with extreme care. Sorting is done from the pail and not from the lug box.

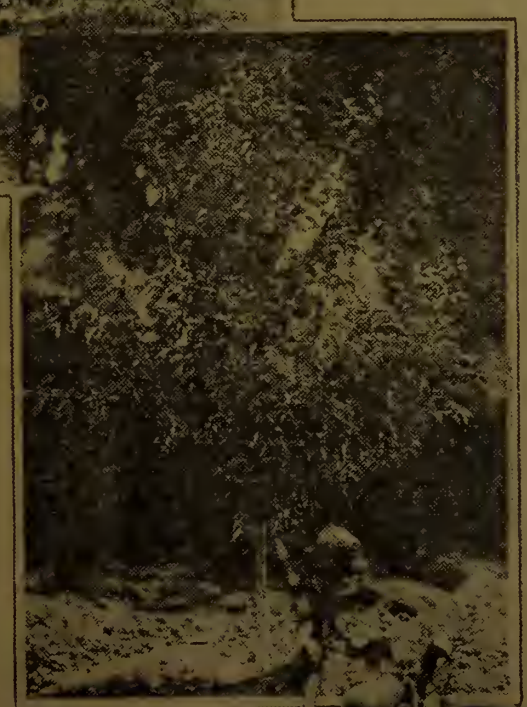
Of course, the observer will argue, the Morse orchards, owned by a San Francisco capitalist, have not been stinted for capital to carry on all operations in the most efficient manner. Yet no money has been put into the place without some apparently good reason and while no expense has been spared to get the fruit and make it of high quality the results seem to justify the means. As in other lines of business, the owner is able and willing to spend money in order to make money.

The labor expense has been held remarkably low, due to the personal activities of the hard-working manager, who has attended to much of the irrigation, cultivation and pruning himself. At present two men are employed and during the harvest season a picking crew of 50 to 60 is required.

—ALBERT J. MASON

All orchard cultivation is done with tractors. Here is shown the plank drag in use one week after the regular cultivation. The drag is not used behind the harrow as on many farms.

He is not a front porch farmer, but usually may be found in overalls out in the orchard.



This two-year-old tree illustrates method of pruning and training in order to produce the maximum amount of fruit wood.

This typical cluster of pears photographed June 15th indicates the heavy yield of fruit this year.

Co-Operation Saves Lamb Crop

How Wool Growers' Association Met a Serious Issue—Other Achievements of California Organization

ALTHOUGH in actual slaughter of animals, sheep owners suffered less than other stockmen from the foot and mouth disease epidemic, they went through a trying time early in the quarantine period. And that the problem was met and conquered is regarded as one of the greatest recommendations for co-operation ever brought to light in California livestock annals.

W. P. WING

Altogether about 25,000 sheep were slaughtered; yet their value was small in comparison with the losses of cattlemen. Most of the sheep were exposed rather than actually infected.

One heavy loser in Merced County was offered by the appraisers only $6 a head for his ewes and $4 for the lambs, whereas a committee of sheep men appraised the same animals at $12 and $8 a head, respectively.

The owner of this stock, as well as others whose sheep were destroyed, was willing to compromise, realizing that State and Government could not offer the full market value. But until the demand was made that experienced stockmen be allowed to serve on the appraising committees, there seemed little hope of getting a fair remuneration.

The stockmen have contended that a sheepman acquainted with local conditions should have a voice in setting the valuation on sheep, cattle breeders should pass upon purebred cattle, and a range cattleman upon range stock condemned. The organized stockmen were able to make their demands heard where it would have been impossible to make any headway singly.

It was in their lamb marketing achievement, however, that the California Wool Growers' Association showed its real value. For a time it looked as though thousands of lambs, ready to sell at a time when feed was scarce, would have to be dumped on local markets or even killed on the range. Neighboring States had imposed such rigid quarantine regulations that it seemed impossible to move any live lambs out of California.

It was then that the Wool Growers' Association stepped into the breach, fostering a plan which saved the day. It was proposed that local killers slaughter the lambs and the dressed carcasses be shipped East in refrigerator cars.

Frantic exchange of telegrams with Eastern concerns and personal visits to California packers at first produced little in the way of tangible results. But at last one San Francisco company agreed to the plan and soon several others in the Bay District and elsewhere fell into line.

SECURE SPECIAL RATE

Then Secretary Wing approached the express company with a request for a special rate, finally securing a 25 per cent reduction, based on an estimated movement of between 200 and 300 cars. Up to the middle of June, about 240 refrigerator cars had rolled eastward, and the day had been saved.

One San Francisco packer alone has slaughtered more than 110,000 lambs for eastern shipment, while others in Northern and Southern California have handled thousands. It was originally estimated that about 125,000 head would be sold in this manner but early in June more than 235,000 animals had been shipped.

Owners, in most cases, did not net as much for their stock as last year. Lambs which brought $8 to $10 net at Omaha in 1923, this year realized $6 to $7. But the general attitude of the owners is one of thankfulness that they were able to sell at all.

More recently the association has bent its efforts toward securing modification of the quarantine regulations of neighboring States in order to be able to move to feedlots some of the lighter lambs which presented a serious problem. After a long period of exchanging telegrams and letters, California officials succeeded in securing from each of the other States an expression of willingness to rescind the regulations provided all the others were of the same mind.

WOOL MARKETING SIMPLIFIED

Another important development cited by Wing is the affiliation of the California producers with those of Washington, Oregon and Idaho in the Pacific Co-operative Wool Growers, an organization which has met with marked success in pooling and selling in the Northwest. The attitude of the California association is that they may market their wools more efficiently by making use of, rather than duplicating, the existing machinery of the northwestern co-operative.

California already has one very successful local wool co-operative—the Northern California Wool Warehouse Co. at Vineland. It is rumored this concern may join the new movement in aligning with the "Pacific."

It is not required of members of the Wool Growers' Association that they subscribe to the marketing plan. In fact, for financial reasons, many are unable to do so. But already more than 500,000 pounds is signed up, according to Secretary Wing. As the volume of business increases, the cost of selling is expected to decrease this being one of the reasons for affiliating with the northwestern producers.

Generally speaking, with the epidemic, dry ranges and other discouraging factors, California sheep men have had a rather unsatisfactory year so far. And of the curatives which it is hoped will put the industry permanently on its feet, none affords more promise, in the belief of leading producers, than the California Wool Growers' Association.—J. C. K.

THE 40TH DOOR

WITH ALLENE RAY

(From the Novel by Mary Hastings Bradley)

In Ten Weekly Chapters

Her hiding place was the tomb of an ancient king!

Hamid Bey, the cruel and sensual Turk, to whom she had been given as bride by the man she thought to be her father, had relentlessly followed her American rescuer and her to the ancient tomb where the explorers had just made a big discovery. The soldiers were at the door. Hastily the young American swathed her in the wrappings of a mummy, and laid her in the sarcophagus.

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HOME FARM HAPPENINGS
By ONE OF US

PRUNES PROMISE BIG SIZES—From present indications the prunes will be big this year—big, sweet, meaty, delicious fruit.

Plenty of water; soil so rich it would grow angel food cake if the seed were available, a hot summer—ideal conditions to make prunes that will be real confectionery.

W. S. GUILFORD

The fruit is sizing up fast—the season is further advanced than we have ever known in the valley—and never before has the soil required so much irrigation water.

HORNED RAMS WITHOUT HORNS—"Why don't the breeders of horned rams—Rambouillets especially—dig the little horns out with a knife or burn them with caustic when they cut their tails off?" asks Howard Goodman.

"Our horned rams are a constant source of worry during the hot weather. They 'butt' each other with their heads and the sores become infected. When two are in a fight that way another will often come at one of the fighters with a 'side swipe' and break some ribs. We had one killed a short time ago.

"There may be some good reason for horns, but I can't see it. We do not have the same trouble with other breeds—I'm just asking, that's all," he concluded.

RICE CROP IS PROMISING—George F. Dozier says his rice is 30 days ahead of last year's crop. He figures it will be ready to cut in September and should be threshed and in the warehouse before October 1.

The rice crop in the Sacramento Valley should make a very good showing this season. There is plenty of water, the cost of production has been reduced materially, since boom days and, with the lessened acreage, there is plenty of machinery to harvest the crop. As it is now grown in smaller areas better cared for—rice is one of the best crops grown in this section.

THINNING THE THIRD TIME—John T. Fagg, Butte City peach grower, has thinned his crop for the third time. The first time over he thought he had taken off too many.

Then he went down to Bert Rawlins' orchard and found that the peaches had been taken off there to a wider spacing than his. So he thinned them again.

And later he decided that they were yet too thick. So more came off.

The soil in which this orchard is planted is very fertile, there is an abundance of irrigation water from the Princeton-Glenn-Codora ditch which runs full past his place during the entire season, and the trees get the best of cultivation.

The neighbors and Mr. Fagg expect a bumper crop of mammoth peaches from this orchard this season.

MAKES SACK SEWING RECORD—Who is the champion sack sewer of the Sacramento Valley, or the State, and what is his record?

Cal Smallwood claims the record for Glenn County. He has been sewing sacks on Mark Hopkins' new harvester. On the Barceleaux place near Butte City he sewed 297 sacks in 4 hours and did his own "jigging."

"Instead of sewing them up at about 90 pounds, I 'jigged' the barley down into the sacks so they averaged 115½ pounds in weight," says Cal.

He has a short piece of pitchfork handle he uses to sort of poke the barley down into the sack. It is the best thing in the world for the job, he claims.

This grain came off 15 acres, yielding nearly 20 sacks per acre, which is pretty good for a dry year.

Charlie Beck doesn't say just how many sacks he can sew in four hours, but asserts that he can sew more sacks with his overcoat on than any other man in this section can stripped to his undershirt.

LAMB SHEARING IS GENERAL—Lamb shearing is the order of the day all through the Sacramento Valley now.

A great many that did not get to market as milk lambs because they were late, or for lack of demand, or because feed conditions were bad, will be carried over.

Everywhere that lambs have come in contact with foxtail and other grass seeds that work into the wool and the flesh, shearing is a profitable as well as a most humane operation.

Lambs "full of seeds" are a constant source of worry. They do not do much and during the hot weather get to be a very sorry lot.

BEST TIME TO CUT HAY—John ... a frank ... cutting ... never has ... of hay cut ... has fed them ... kinds of ... stock and has ... about the time ... be cut.

Just as it ... bloom, the time to cut ... when the whole field is ... says "Cut it while there is some ... in the stems and ... the leaves stay on, if you don't handle it too ...

"Leave it until it is all in bloom ... no matter if you handle it all ... morning when ... is heavy ... you can't save the leaves, which ... the best part of the hay."

I was an interested listener to a conversation early in June between Harry Petrie, manager Union Land and Cattle Company holdings in Nevada, and Bill Callahan, who runs the Boynton Ranch near Reno for that outfit.

"When do you start haying, Bill?" asked Harry.

"No bloom showing yet—it will be a couple of weeks more I guess," replied Bill.

"Might not be a bad idea to get an early start this year. Season's pretty dry, and that way you will have a chance to break in a second or third hay crew, if the first men you hire don't 'pan out' just right.

"Remember that ... with last year ... five there were two harbers, two miners and one ... with no definite occupation. One of them took out a team and when ... unharnessed the horses he had ... hames unbuckled ... and bottom ... every part of the harness unbuckled and taken apart—like you would if you were going to wash and grease it.

"When a man says he is a hay ... and can drive a team you can't always tell whether he really is, or if he wants to get a couple square meals," concluded Harry.

SATISFACTORY WOOL MARKETING—Had a nice visit a few days ago with Fred Ellenwood and ... Hart, who, with Gus ... were connected with the Wool Warehouse at Vina.

The spring sale of wool was not "snappy" and the wool market is ... tive.

"The best wools offered in the ... sales were not in demand at a ... that we thought was within ... three cents a pound of their ... worth based on shrink and other factors and the world's market," said Mr. Ellenwood.

"Some of the short clips that we ... absolute orders to sell at whatever they would bring sold very well ... a number of the big clips of the ... wool were not marketed.

"These same best clips probably would not bring as much today as poorer clips sold for, but there ... course, no way of knowing that," he continued.

The "HOME FARM" clip was in the sale—a mixed lot of ewe, ram and lamb fleeces—none over five months ... and it sold for 26½ cents per pound. We were more than satisfied.

This Wool Association Co-operative outfit under its present management is a most satisfactory concern to do business with.

As has been noted before in these columns, all they expect to do is to get together enough wool at ... warehouse to interest buyers, then ... it on the day agreed upon by the fleecers and directors at as ... world's market price for the ... possible.

No attempt to "corner the market," no attempt to revolutionize the wool industry; no attempt to put the middleman out of business, no attempt to sell the finished product direct to the consumer—no interest in ... the wool grower whose ... be marketed.

"A wonderful system," say the ... ers who have signed up for ... of this service.

GRAFTING TEHAMA OLIVES

The Ehmann Olive Company is planning to graft 8000 olive trees in Tehama County to larger ... C. H. Hood is changing ... trees near Corning to ... Rafael Lopez is grafting ... ber of trees to Sevillano ... is becoming the favorite ... Corning district ... size.

Scientific Calimyrna Fig Fertilization

By ROBERT W. HODGSON

Associate Professor Sub-tropical Horticulture, University of California

WITH the exception of growers and horticulturists, comparatively few persons realize that the entire success of the Calimyrna fig industry in California is dependent upon the activity of a tiny wasp Blastophaga grossorum. The Smyrna is by far the best quality fig grown especially for drying purposes. All of the varieties belonging to the Smyrna group, of which the Calimyrna is the one grown extensively in California, require pollination for fruit setting, while practically all other varieties set fruit without pollination.

ROBERT W. HODGSON

The process of pollination of the Smyrna fig, which is effected through the agency of the Blastophaga wasp in transferring pollen from the caprifig to the Smyrna fig, is known as "caprification." Unless pollinized, the second crop—which is the commercial crop of the Smyrna fig fails to mature and drops from the tree early in its development.

In order to effect pollination, figs containing functioning male flowers are required and in addition the presence of the Blastophaga wasps in these figs to act as the agents in transferring the pollen. This intimate relationship between the presence and activity of an insect and successful fruiting is known technically as "symbiosis." The symbiotic relationship between the fig wasp and the Smyrna fig is undoubtedly one of the most outstanding commercial illustrations of this phenomenon available.

The commercial caprification process consists of gathering caprifigs known to be colonized with the fig wasps and placing them in the Smyrna fig trees in sufficient numbers and appropriate containers in early morning. When gathered at the proper stage of development with the advent of warm mid-day temperatures, the female wasps emerge from the caprifigs and seek a suitable place in which to deposit their eggs. They carry with them the pollen which is produced by the male blossoms in the caprifig and entering the young Smyrna figs they there effect pollination.

The satisfactory setting of a crop of Smyrna figs is therefore an extremely complicated affair. There must be caprifigs available containing plenty of viable pollen. The caprifigs also must contain sufficient gall flowers in which the fig wasps hibernate to provide plenty of insects to transfer the pollen. The caprifigs must be gathered at the proper stage in their development for the emergence of the insects and varieties of caprifigs must be available in which the insects emerge at the stage when the young Smyrna figs are receptive to pollination.

Fortunately there is considerable leeway in all of these essentials, with the result that if proper attention is paid to the details of the process the result is a commercial Calimyrna fig crop.

In most instances it is desirable to use caprifigs grown in the same community in which the Smyrna fig orchards are located in order to make certain that the receptive condition of the Smyrna figs coincides with the stage of development of the caprifigs at which the insects emerge.

The story of the introduction of the fig wasp and its establishment in the fig producing sections of California together with the development of the Calimyrna fig industry, constitutes one of the most entrancing chapters in California horticultural development. After numerous failures, the attempts finally met with success and gradually the various problems attendant upon successful caprification have been solved.

There still is, however, considerable difference of opinion concerning some of the practical features of caprification, especially in relation to the number of caprifigs which should be used for different sized Smyrna fig trees. The present attitude of the majority of growers is that overcaprification is not possible, but that it is unprofitable to use too many caprifigs.

After several years of study of this question, the accompanying table relating to the use of caprifigs was prepared by Professor Condit and represents the best practice at the present time.

Number of Caprifigs Required for Pollination Purposes

Diameter Spread of Branches	Required Number Caprifigs	Distribution to each Basket	Intervals	Number of Baskets
6 feet	24	6	6 days	1
8 "	36	6	4 "	1
10 "	48	6	3 "	1
12 "	64	4	3 "	2
14 "	72	4	3 "	2
16 "	80	5	3 "	2
18 "	90	3-4	5 "	3
20 "	96	4	3 "	3

Provide Pasturage for Pork Production

By E. H. HUGHES

University of California

FORAGE crops are valuable for all swine, especially for young growing pigs, as such feed is rich in body building materials needed in liberal quantities by the growing animal. Alfalfa, clover, rape and other pasture crops contain much protein, which supplements the nutrients of barley and other grains and therefore helps materially to balance common grain concentrates, which usually are carbonaceous feeds.

Forages also are rich in minerals, especially lime and phosphorus, which are necessary for the proper development of the frame of the young animal. Green pasture crops, furthermore, contain all the vitamines, which are apparently so necessary for the growth and health of all animals.

Alfalfa and other forage provide large quantities of nutrients, therefore the amount of grain concentrates required to produce a given amount of gain is materially reduced. Because of the protein and minerals contained in a good pasture crop the amount of [illegible] nitrogenous concentrates, [illegible] tankage, middlings and skim [illegible] necessary to balance the ration [illegible] gains on pasture are [illegible] made in dry lots [illegible] conditions much su[illegible] the possibility of loss [illegible]

[illegible] plant we [illegible] to our [illegible] pe[illegible] alfalfa af fords pasture for a long season; it is permanent; it stands tramping well and its leguminous characteristics are of soil building value.

Dwarf Essex rape is a desirable annual forage that can be sown in small lots around the barn. This crop can be planted in October and pastured during the winter months, when it might not be desirable to pasture alfalfa because of wet soil. Excellent results also have been obtained when rape was sown in February.

A good stand is obtained if a fine seed bed is prepared and the seed sown at the rate of eight pounds per acre. The seed is small and can be sown either with a grass seeder or broadcast by hand. To sow rape by hand it is a good practice to mix it with sand. This makes it easier to distribute the seed uniformly.

Pigs should not be turned into rape until it is about ten inches in height. This crop sometimes is sown with oats or barley, the grain being planted at the rate of one bushel per acre. It is possible to pasture 20 pigs on an acre of rape for a period of 100 days.

Many other forage crops have been successful in the Middle West, as well as in our own State. The clovers, Sudan grass, Harding grass and the more common grasses—wheat, barley, rape, oats, bluegrass and other natural grasses have been pastured with favorable results. When pigs are grown or fattened on such forages gains have b[illegible]de on less concentrates [illegible]t of [illegible] reduced

Goat Is Milking Herself

JAMES F. McMAHON, Paso Robles, wants to know why his goat milks herself. He tried smearing udder with cup grease, but this did not break up the habit. Miss Rose Saunders, Canyon Ranch, Redlands, advises as follows:

The habit of self-sucking is generally started by some discomfort or irritation which causes the goat to lick her udder and teats. In doing so she probably sucks in a few drops of milk and finding this agreeable she soon acquires this bad habit of milking herself.

Soreness or irritation may be started by too much milk when the doe first comes fresh, or by irregular hours of milking. The remedy is to milk her three times a day to relieve any pressure that may be present or very punctually every 12 hours.

The application of cup grease probably is quite a good deterrent, but is "messy" to use and is apt to cause more irritation, if the udder is at all tender. Personally we prefer to enclose the udder in a cheese-cloth or muslin bag tied with tapes over her back and another tape from her collar to the back tapes, which will prevent the cloth slipping off.

In time she will forget this bad habit and the bag will no longer be necessary. This habit of self-sucking is not usual among goats.

THE "GREEN" HAND

(He took a correspondence course in agriculture)

His Nibbs—"I can't find that hay knife anywhere?"

The Boss—"Why, it's sticking right in the stack!"

His Nibbs—"No, Sir. Nothing there but a fine-tooth saw."

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18 YDS. $1.98

Big Bundle

Too good to be true? Yet we mean it! Great big **18-Yard Bundle** for only $1.98 during this sale! Hurry! Hurry! You may be too late! This offer might be withdrawn any time. Contains such materials as **Ginghams, Percales, Chambrays, Hollands, Voiles, Scrims, Toweling and Organdies—no piece less than 2 yards.** Selection must be left to us.

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Thin stock is being sacrificed and there never before was such an opportunity to buy thin stock for the feedlot at such attractive prices.

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NO COMMISSION. Sell your farm direct to buyer. We put you in touch with thousands of buyers through our [illegible] service. Owner only pays small listing fee for expenses. Booklets of farms for sale free. OWNERS' NATIONAL LISTING BUREAU, [illegible] 443-441 Roberts Bldg., Los Angeles, Cal.

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SWISS MONDAINE PIGEONS are purebreds and, as you know, purebreds pay and pay well. If you are interested in this new industry send 15c to American Pigeon Journal, Warrenton, Mo., for their May issue.

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CUPBOARD DOORS three-ply veneer panels—$1.[illegible] to $2.[illegible] With glass and wood bars, $1.[illegible] to $3.75.

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MISCELLANEOUS

PRINTED FRUIT JAR LABELS [illegible] convenient, easy to [illegible] looking for [illegible] in handy booklet form, 20 to sheet, perforated, gummed paper, [illegible] assorted [illegible] kinds, 60c postpaid. Do it now. LESTER O. [illegible]ARBE, 163 Frederick St., San Francisco, Calif.

Pollinating Plums in Placer County

RESULTS of an intensive study of pollination has transformed plum growing in Placer County from a losing game to a profitable industry. The plum tree grows and bears in this district better than any other kind of fruit. The commercial varieties ship well and sell at good prices in the Eastern markets.

But when it comes to pollination the plum in Placer County is very temperamental. Most varieties are not self-fertile. Some seasons they set well, others very poorly. This uncertainty was not satisfactory to the plum grower, therefore, three years ago he decided to either make his trees bear regularly or tear them out.

A. H. Hendrickson of the California College of Agriculture was assigned to the job of improving plum pollination.

The latest demonstration was carried on by Roy K. McCallum, farm adviser, on the H. E. Butler's Oloha ranch at Penryn. A barren Grand Duke tree was covered by a mosquito-mesh tent. A stand of bees was placed within and three blossoming Tragedy plum branches were placed in cans of water to keep them blooming and were hung in the midst of the branches of the tree. In the tree next to the tent Tragedy branches were also suspended in the same manner. The next two trees were left "as is." The fifth tree occupied a position immediately adjoining fifteen stands of bees.

Recent observation has been made of set of fruit on these trees. The tented tree was carrying a crop that had to be thinned. The tree outside the tent and which carried the Tragedy branches set a moderate crop. The next tree set a few fruits, the adjoining one none and the one next to the bee hives, none.

Of course, it was high-powered pollination that was used on the tented tree but it demonstrates to a certainty that Tragedy plum plus bees will pollinate Grand Duke. Similar experiments with other varieties have been equally convincing and it has been determined just what varieties will pollinate other varieties.

Lists of these pollinators have been made, giving information as to just what variety will successfully pollinate other varieties. These lists have been furnished by the Farm Bureau to plum growers, many of whom already have grafted appropriate pollinators in all their trees. The grafts are placed high in the tree, so the area of the pollen spread may cover the whole tree. —W. B. HOTCHKISS, Farm Bureau Publicity Director.

Grand Duke plum tree enclosed in net-covered frame, with stand of bees and branches of blossoming Tragedy tree.

Lower branch from net-covered tree shows results of pollination. Upper branch, poor crop on unpollinated tree.

Town and Country Co-operation

(Continued From Page Three)

this system we shall have a cross representation which will always keep the duties of the two organizations in the minds of the respective members.

"In addition to this arrangement, we have a striking example of the co-operative relationship which exists between the organizations in the activities of the Orange Community Chamber of Commerce during the last Farm Bureau membership drive. At that time the Chamber inserted a full page ad in their local paper urging farmers to join the Bureau, and good results were obtained by this means.

"At present as indicated by Mr. Metzgar's letter the two organizations are working together in very close harmony and each of us refers to the other those things which should be handled by the other organization. As I said in the beginning this condition is almost ideal and I believe that all it lacks is a declaration of the aspirations of each organization, the formation of a definite policy of relationship, and perhaps the division of membership.

"We believe farmers should belong to the Farm Bureau and business men should belong to the Chamber of Commerce. We believe that when matters arise which involve the interests of both the organizations, the representatives should get together on the problem. Especially would this be desirable when the operation of one organization might conflict with the best interests of the members of the other party.

"Should such conditions arise, we believe the Board of Directors of the Chamber of Commerce and the Executive Committee of the Farm Bureau could sit down together and iron out their differences in a short time. You will generally find that these men are public spirited and broad minded and are willing to give and take. When they find their own selfish ambitions are going to react against the benefit of the whole they will recede from their position. The question is settled by co-operation and understanding.

"We do not believe it necessary for farmers to belong to a Chamber of Commerce in order to protect their interests. The Farm Bureau should be strong enough to be recognized by the Chambers of Commerce as a sort of compatriot, and their wishes should be considered in regard to agricultural needs or matters affecting the interests of the farmers which they represent just as much as if the farmers were members of the Chamber of Commerce.

"I have in mind a situation where the farmers have joined a rural, (very rural) Chamber of Commerce in order to prevent the town from incorporating and including in its limits a large agricultural area. These farmers do not want to play parlor politics and pay the taxes which necessarily follow that great American game. It seems that this is a case where the Farm Center as an organization representing all the farmers' interests should have said, 'Brother, we don't want to be included in your city,' and the Chamber should have recognized their wishes—a sort of 'man to man' situation and agreement.

"We might summarize this whole situation in the cryptic motto 'You get 'em we keep 'em,' amplifying that motto by the statement that the Chamber of Commerce represents the business man in particular, but the county as a whole in the matter of exploitation, inducing settlement and encouraging industries. The Bureau represents the farmers in particular, the general agricultural progress of the county, and the consumer interest (taxes, public utilities).

"That the two should work together with the understanding that one organization is no greater than the other; that the wishes of one should not conflict with the desires of the other, that they should recognize each other as comrades and co-workers, each sincerely having the welfare of the entire community at heart is the ideal arrangement.

"In the foregoing I have tried to explain the local situation, and, since it is so nearly ideal, I have only pointed out what changes might be desirable."

Editor's N[illegible] a series of ar[illegible] operation. T[illegible] issue [illegible] corresponding [illegible] important [illegible]

"I pay the Freight"
Red Top Steel Fence Posts and Farm Fencing
Harry Baylies
FREE FENCE Catalog
4[illegible] Finance Bldg. Los Angeles
427 Dewey Bldg. Oakland

Goats Resist Epidemic

"IT IS interesting to note," [illegible] Miss Rose Saunders, [illegible] Rancho Rellards, "that [illegible] slaughtered in California on [illegible] the prevailing epidemic [illegible] infected with foot and mouth [illegible] The only reason they were k[illegible] because they happened to be [illegible] taminated premises. This [illegible] tribute to the healthiness and hardiness of goats.

"Like all other livestock [illegible] the milk goat business h[illegible] from the quarantine [illegible] contrast to the high prices [illegible] the recent war many [illegible] expect to buy good milk [illegible] nally cheap, below the a[illegible] production. W[illegible] ernment offered Hartwick [illegible] for purebred goats which [illegible] $1000 each a few years ago. [illegible] he will receive more [illegible] value for his magnificent [illegible] Holsteins."

Chances in New Zealand

"NEW ZEALAND is a [illegible] ful country," writes Miss A[illegible] Mackie, an English lady wh[illegible] last year in Southern C[illegible] now is touring the Antipodes. "It [illegible] a veritable land of ferns, [illegible] here in every variety and s[illegible] able. It is a very new [illegible] remote from the centers of [illegible] tion and very much in need of the right sort of settlers to develop its natural resources. The present [illegible] are mostly hardy Scotch[illegible] good, hard-working colonists.

"Already I am homesick for S[illegible] California, that dear land of [illegible] and flowers. Am planning to return [illegible] that favored land again next year. [illegible] return trip to England w[illegible] via [illegible]

BAR-GAIN SALE
Tussah Silk—Spanish Lace Dresses $3.98
An Amazing Offer! No Other Company Can Afford to Make [illegible] a Price!

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Send No Money With Order
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268 Market St., San Francisco, Cal.

You can be quickly cured, if you
STAMMER
[illegible]

Farm Fire Wardens

D[illegible] years are usually bad fire years. Not only does more of the [illegible] dry out but it dries out [illegible] earlier so that there is a longer [illegible] when fires are likely to occur.

[illegible] all indications the weather year [illegible] September 1, 1923, to August 31, [illegible] is going into record in Marin County and in many other parts of the [illegible] the driest year in the past [illegible] years. We need 1.65 inches [illegible] San Rafael to bring our rain record up to that of the driest previous year in the past forty-nine.

In order to combat this hazard the Agricultural Extension Service has de[illegible] and is developing additional [illegible] companies, so that there will be men ready with the proper equipment to fight any fires which may [illegible] in their communities. That the [illegible] fire districts are very successful in fighting fires is definitely brought out by the following figures:

The losses by fire in the rural districts in the thirteen northern agricultural counties of California during the year 1923 was $385,488, or an average of $29,652 for each county. The loss in Sacramento County, which has well organized rural fire protection units, was $3688 or about $26,000 below the average loss in the other counties.

H J Baade, Farm Adviser of Napa, also has completely organized his county into rural fire districts. The Novato Farm Center, Marin County, has been organized, with Chas. A. Olson as deputy State fire warden.

Many individual ranchers may protect their property from fire by following the example of Jas. B. Burdell of Novato. He is burning the strip of grass between the highway pavement and his fences and is making the State highway a fire guard to his property, instead of one of the worst fire hazards with which the farmers along highways have to contend. Such work when properly and carefully done not only is a protection to the immediate property but of great protective value to the whole community.—M. B. BOISSEVAIN, Napa Farm Adviser.

Plants for Jardiniers

IN reply to an inquiry from F. W. Campbell, New Mexico, will say that the selection of plants for large oak jardiniers will depend largely upon the positions the tubs will occupy, their exposure and the treatment the plants within them will receive. If the tubs are to be kept continuously indoors and in a shady place they might be planted to either the rubber tree (fiscus elastica) or the Kentia palm (Kentia fosteriana).

The rubber tree has a large, glossy leaf and decorative foliage. It will not stand frost. The Kentia also is tender to frost, but is a highly decorative palm with recurvent fronds. It is frequently used for indoor decoration.

The European bay tree (laurus nobilis) frequently is used in tubs. It will stand both sun and shade, also considerable cold. It is compact in habit, dense growing and can be clipped into formal shape. The Japanese burning bush (Euonymus Japonicus) also is a good foliage plant, can be trimmed to suit the taste and will stand a considerable leeway of heat [illegible] sun and shade.

The common arbor vitae is frequently used for tubs. It is a so-called evergreen, although all of the plants which I name hold their leaves the entire year. It is a conifer, with narrow, [illegible]-like leaves and has a very trim, [illegible] appearance.

A [illegible] much in my favor for jar[illegible] use is one of the privets ([illegible]trum coriaceum), which has ex[illegible] dark-green foliage, a leaf with [illegible] edges and splendid habit of [illegible]. It grows very slowly and, [illegible] will keep for a long time [illegible] becoming too large. It stands [illegible]able heat and cold and is quite [illegible] to sun and shade.—RALPH T. CORNELL.

Nicotine for Round Worms

OWING to the low percentage of nicotine, less than one per cent [illegible] tobacco dust sold [illegible] California contains, it is [illegible] to reinforce 40 pounds of [illegible] with four-fifths pound of Black [illegible] feeding this remedy to hens [illegible] worms.

[illegible] amount of reinforced tobacco [illegible] mixed with one ton of [illegible] no longer than two [illegible] days. It is important to [illegible] ingredients thoroughly, as [illegible] very concentrated, a [illegible] saturated with i[illegible] to kill a hen. (Suggest [illegible] adding to [illegible])

[illegible] the hens [illegible] of [illegible] a week [illegible] buttermilk [illegible]

Petaluma Leads Poultry Production

(Continued From Page Two)

let us back up and take an aeroplane view of America's poultry capital. An unusual volume of business every day in the week and every month in the year is a Petaluma characteristic. Poultry farming is not a seasonable industry, like grain, fruit or vegetable growing, but—in common with dairying—means the operation of a manufacturing plant 365 days in the year. The work is confining—yes, but so is selling groceries—though regularly remunerative. The steady job may not be the pleasantest, but usually it is the one that pays best in the long run.

Down at the docks steamers and tug-drawn barges are unloading great cargoes of grain, which fill enormous warehouses along the Petaluma waterfront. When co-operative buying of feed is suggested, prosperous dealers assure us that supplies are sold on a very close margin; in fact, at a merely nominal profit. Upon breaking into the financial circles the inquisitive visitor learns that one of these dealers who has been handling feed on microscopic margins has amassed a fortune of $4,-000,000 in the business. Could not the farmers have kept a good share of this immense sum by handling their own feed co-operatively?

DAIRYING HELPS POULTRY

It is an undeniable fact, however, that Petaluma poultry feed is sold at very close prices and is perhaps cheaper than in any other egg district. The dealer referred to has been in business nearly half a century and has handled many hundred train-loads of grain and other supplies. The great volume of Petaluma's feed business enables dealers to buy to advantage, which is the prime requisite of low selling prices.

Petaluma's dairy industry should not be overlooked, as this important branch of farming brings in $6,000,000 a year—one-third as much as poultry. Cows and chickens go well together, the former using the flat land and the latter consuming creamery by-products. Sonoma and Marin dairymen support a large and successful co-operative creamery at Petaluma.

The average Petaluma poultry ranch comprises five acres, is valued at $7500 and supports 2500 hens, which in turn earn a livelihood for their owner. Unimproved land is valued at $300 an acre, but the buyer must go several miles from town to find such property.

Years ago it was believed that just as few chickens should be kept together in one building as possible. Consequently, small, portable hen coops were the rule. Many of these still are to be found around Petaluma, especially in the outlying districts. But as land became more valuable and poultry house sanitation was reduced to a fine art, larger and larger structures were erected, until now it is nothing uncommon to find a thousand or more hens living and laying together in peace and perfect health, sheltered by a single roof.

CITY ASSISTS COUNTRY

The greatest advance in Petaluma's poultry industry has been made since H. W. Kerrigan came, eight years ago, to "sit in" the egg game. He is secretary and manager of the Chamber of Commerce, but he has made it his chief business to push the chicken business toward its present place in the sun of prosperity. His middle name ought to be "Co-operation," because he works hand-in-glove with any and every agency that starts dollars rolling towards poultrymen's pockets.

Kerrigan's greatest achievement, perhaps, and the one which made him a national figure, was the country wide campaign which he conducted in support of the present egg tariff law. In order to gain support of this meritorious measure he visited State after State and showed leading citizens, first, the importance of the poultry industry and how it might be developed to very profitable proportions in their community; second, the desirability and necessity of the proposed law. The first line of talk was necessary to get action on the tariff measure. Bankers, merchants and farmers in States like Arkansas—for example—were simply amazed to hear the zealous Californian tell what poultry had done for the Petaluma community and how similar success might be attained in the land beyond the Ozarks.

"An effort is being made by the big packers and other interested parties to secure a modification of our egg tariff, which will practically emasculate the measure," Kerrigan points out. "In 1913 when the duty on foreign eggs was merely nominal, the United States imported 16,000,000 Chinese eggs. Last year, with a tariff of 8 cents per dozen, we shipped in practically none. Packers want the duty on both egg meats and frozen eggs in shell reduced to 2 cents and the present 18 cents tariff on dried eggs cut down to 10 cents."

Under the Kerrigan regime the average [illegible] of Petaluma hens has been increased from 100 to 130, a Farm Bureau egg laying contest and an avian pathology (Poultry disease) laboratory established, boys and girls club work, accredited hatchery and pedigreed pullet movement started. Of course, the Extension Service deserves chief credit for these very helpful enterprises, but the Chamber of Commerce took a prominent part in pushing along the good work.

It is not surprising to find the biggest chick hatcheries in the world at Petaluma, but it staggers imagination to learn that in one of these institutions—the Must Hatch—a single setting comprises 600,000 eggs, nearly two-thirds of a million.

"Quality must keep pace with quantity," asserts L. A. Bourke, Must Hatch manager. "The time has passed when all chicks looked alike to poultrymen. They now demand pedigreed pullets and certified chicks and are unhappy until they get them.

IMPORT PEDIGREED MALES

"In order to meet certification requirements all the hens which lay eggs for us must be at least a year old, in what the inspector considers good, healthy condition and from flocks which are culled annually according to Extension service standards.

"Our breeding cockerels must be healthy and vigorous and at least eight months old. Their dams and sire's dam must have records of at least 175 eggs. No artificial lighting is permitted in the laying houses before 5 o'clock in the morning and the hens must not be stimulated to lay more than two days out of five during November and December. Eggs must weigh between 22 and 26 ounces per dozen, be of uniform size, shape and color, and be delivered to the hatchery within a week after being laid. Hens must be fed plenty of grain and greens.

"These rules seem stringent enough to insure first-class chicks, but we go the inspectors one better when it comes to getting eggs from heavy laying stock and giving the birds the best of care. Must Hatch hens have free range and are surrounded by conditions which approximate nature as closely as possible, which insures the greatest possible health and vigor.

NO EXCUSE FOR FAILURE

"Last year we shipped an entire carload of pedigreed cockerels from Oregon, something unprecedented in California poultry history. The birds came from three pens, where the egg records were 225-270, 200-250 and 200-248. Sire's dams had records running from 251 to 294."

While 2500 hens is the average number per farm in this district, the sky's the limit—almost. Ray Corliss had 47,000, which were cared for by eight men. His brother Wesley, who succeeded him, now has a sizable flock of 32,000 cackling biddies on 45 acres.

How about successes and failures? "The man who has been engaged in some other line of work is the most apt to succeed with poultry," Kerrigan points out. "This is because he has no preconceived notions as to how the work should be done and is willing to take the advice of experts and those who have succeeded under similar circumstances. Scandinavians make the best workers, as a rule. Unwillingness to work, to 'dig in and dig out,' is the principal cause of our few failures. There really is no excuse for not making good nowadays in the chicken business, because it has been reduced almost to an exact science, largely eliminating chance and guesswork."

SOME UNUSUAL SUCCESSES

J. J. Bergstedt, a former minister who came to Petaluma broken in health and engaged in poultry farming, has 4000 hens on 10 acres. He has a fine country home and is considered one of the best chicken men in the district.

Dave Anderson, a former Chicago newsboy, came to Petaluma 20 years ago and now has a beautiful country home and a 5500-hen poultry plant, valued at $40,000—all made in the chicken business.

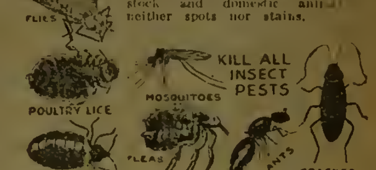
Another outstanding success was won via the egg route by Carl Jacobson, who learned the profession by working on a poultry ranch for $35 a month. His employer loaned him $500 to set up business for himself. Five years ago he sold out for $56,000. N. Nielson is the present owner of the place.

Dismissing for a moment the economic side of poultrying, what could be more ideal than the way city and country blend together in the Petaluma district? Here it is possible to enjoy in large measure the advantages of both rural and town life. The goal towards which so many communities are working—many families on small tracts, intensively farmed—has here been reached, there being a rural population of 900[illegible] in Petaluma's nearby supporting territory.

Strange Discovery Wipes Out Flies

Dust of An Asiatic Flower Fanned in Air Is Quick Death to All Insect Pests. Odorless and Not a Poison.

It is now easy to rid the home, outbuildings, live stock or shrubbery of flies and other obnoxious and disease carrying insect pests. The flower dust of a remarkable plant imported from the high dry altitudes of Asia, when fanned in the air, does it by closing the respiratory [illegible] glands, producing sure [illegible] faction and death. It is odorless, and absolutely harmless to humans, stock and domestic animals. It neither spots nor stains.



The only safe, sanitary method of killing all insect pests. Simply fan it in the air or on animals. A boon to housewives, farmers, dairymen and storekeepers; especially valuable to dairymen, as it enables the herd to eat and sleep in peace, with records of increased milk yields of 15 to 20 per cent. Protects grain in storage from weevil and all insects.

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HUMAN INTEREST

We are all interested in what the other fellow is doing, how he solves problems similar to ours, in what manner he has achieved success.

To get [illegible] ORCHARD and FARM [illegible] with [illegible]

No [illegible] farm [illegible] desire to give PRACTICAL SERVICE.

Farming Experiences of Film Favorite

YES, [illegible] Allene Ray, Patheserial st[illegible], [illegible]ose picture, "The 40th Door" is now being viewed with inter[illegible] by California movie fans, is an honest-to-goodness, "reel" dirt farmer. If you don't believe it, ask Jim Jeffries, her ex-pugilist neighbor, who actively operates a good-sized stock farm near Burbank. Miss Ray puts in all her spare time actually tilling the soil and caring for farm animals, and thoroughly enjoys the work.

"A craving to do something really worth while is what led me to engage in farming," explains this film favorite. "My modest successes have been a surprise to both myself and neighbors and I find the work so interesting I wouldn't give it up for anything."

The neighbors nodded to each other knowingly when Miss Ray put on overalls, rolled up her sleeves and went to work on her Burbank ranch. "She won't last long," they prophesied.

But when they found she was in earnest about farming and had plenty of grit and perseverance these same neighbors offered in every way to assist her, not only with advice, but more tangible things.

"Last year I produced only back yard stuff—such as lettuce, beets, beans, peas, tomatoes and chickens," relates the cinema star. "This year, however, I added sweet corn, radishes, squash, loganberries, blackberries, strawberries, hogs, turkeys and more chickens."

Two lads who have a farm of their own nearby manage the Ray ranch while its fair mistress is absent on "location." They used to borrow horses to do the plowing and other field work, but their employer now owns—and uses—a tractor, which she finds a very interesting piece of machinery.

Miss Ray declares that since she became a food producer the act of eating has become more interesting, an idea that never occurs to the average farmer. "Imagine eating food every day and not knowing how it is grown!" she exclaims. "Not until I started my little farm did I really begin to learn about the things I had been consuming all my life.

"My blackberries and loganberries seem to me most wonderful. I have them for dinner almost every evening nowadays and my friends will hardly believe I grew them myself. There is an old Gravenstein apple tree in my yard and it bears some of the most delicious fruit I ever ate—I wish I had a whole orchard of such trees."

Two smaller tracts of land at Beverly Glen are being improved by the Pathe luminary, who expects to make all her land produce things that are useful as well as ornamental.—JAMES STARR.

Miss Ray tried plowing with horses, but finally purchased a tractor, which gives great satisfaction.

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Dezell Discusses Citricultural Problems

(Continued From Page Three)

growers' complaints of unprofitable prices? Should consumers pay more for citrus fruits? Is it not a fact that many orchardists receive returns which do not pay production, marketing and shipping costs? Is he not entitled to cost-plus prices? Should the price of lemons, for example be determined by finding the total expense of growing and distributing and then adding a reasonable profit?"

"Wait a minute," requested Dezell. "You are tackling the problem from the wrong end. It is impossible to fix the price of citrus fruits on any such basis. The consumer pays what he pleases for oranges, lemons and grapefruit. If he considers the price too high, compared to other fruits, he simply will refuse to purchase.

"The price is fixed by consumer demand and producer supply—the cost of growing and distributing has nothing to do with it. Orchadists cannot hope to increase profits by arbitrarily raising prices, but by lowering production costs, more efficient and economical distribution and augmenting demand by means of intelligent publicity and advertising. All these can and are being accomplished co-operatively."

"Is it possible to make money growing oranges at prices which have prevailed during the past five or ten years, or which likely will be obtained during a future period of similar length?"

"The best answer to that question is the experience of numerous prosperous citrus growers," replied Dezell. "Conspicuous successes have been achieved with both large and small capital and by those who in the beginning had no capital at all.

UNJUSTIFIABLE COMPLAINT

"I have in mind a man who started 17 years ago—when price complaints were just as common as they are now—by buying a five-acre grove. This orchardist has made a good living growing oranges, drives two autos and is sending his children to college. In addition, he has increased his capital stock until he now owns a 50-acre grove valued at $100,000.

"Is not this a better record than the average or even exceptional man makes in other lines of legitimate industry? Yet this grower feels he is not getting a square deal; that orange prices are too low and distributing costs too high."

This grower, however, is the exception, not the rule. It is an undeniable fact that a great many citrus orchardists do not make enough money to pay themselves wages and return current interest rates on capital invested. Does this indicate there is something basically wrong with the orange industry as now exists?

In many cases lack of profit is due to unfavorable soil and climate conditions, which result in small yields of poor fruit, or none at all in seasons of destructive frosts. Should the price of oranges be high enough to offset such losses? Should orchardists be encouraged to grow fruit in naturally poor locations? Surely this would not be good business.

Planting in unfavorable locations is only one mistake made by growers whose operations are unprofitable. Others include setting out poor trees; poor cultivation, inadequate or improper soil fertilization, over or under-irrigation—usually the latter; ineffective control of insect pests and fungus diseases; wrong pruning methods; poor grading and packing—in short, inefficiency all along the line.

Are such growers entitled to a profit for their operations? To pay them well for their work would be to place a premium on inefficiency.

"What do you think of the prospects for the 'trustification of citriculture?' Is there danger of the small grower being forced out of the game?"

"I see no cause for alarm in that direction," answered Dezell. "The advantages are not all on the side of the big grower. It is true the owners of 50 10-acre groves will not average as efficient as the manager who can be hired by the owner of 500 acres. If this 'super citriculturist' was able to perform all the orcharding operations himself no doubt he would outdistance his 10-acre competitors.

"The manager of a large citrus property, however, must employ others to perform the actual orcharding operations and no matter how efficiently their work is directed they are not apt to exercise skill and judgment superior to that of average small orchardists, because they are only hired workmen and do not take the same personal interest in fruit and trees as do those who are caring for their own property."

"But cannot a large acreage be managed more economically by reducing the overhead, than a small one? [illegible] proper[illegible] to equip [illegible] small grove with the necessary [illegible] and machinery the [illegible] considerably larger than [illegible] orchard, or group of orchards."

"That is true, but this [illegible] be largely overcome by us[illegible] tools on more than one [illegible] owned grove. At Upland a number [illegible] small growers formed an [illegible] for doing orchard work co-operatively using equipment owned in [illegible]

"It is not true that the large operator can market his crop—which is considered half the farming game—more efficiently than the average [illegible] grower?"

"Working independently, y[illegible] operatively, no. I agree with H[illegible] Wrightson of the State Farm Bure[illegible] that co-operative marketing is [illegible] more than anything else to en[illegible] small farmers successfully to com[illegible] with large operators. It places t[illegible] $10,000 producer on the same pl[illegible] with the million-dollar agricultur[illegible] when it comes to selling crops [illegible] animals. The owner of a small citru[illegible] grove or raisin vineyard pays his [illegible] rata share of the expense of maintai[illegible]ing an expert sales organization f[illegible] which he receives exactly the [illegible] benefit as the man who counts [illegible] crops by the square mile."

"Yes, but a good many small grow[illegible]ers feel they are discriminated agai[illegible] in the distribution and sale of produ[illegible] Although they have no tangible evi[illegible]dence, perhaps, to confirm their [illegible]ion, they suspect that the big produ[illegible] who generally is a director of [illegible] packing organization [illegible] things to his advantage when it [illegible] to shipping and selling crops."

"That would be impossible [illegible] crops are pooled and the returns [illegible]rated equally among all [illegible] After fruit enters a packing house [illegible] loses its identity being pa[illegible] form grades and going to the tr[illegible] under the same labels. Any [illegible] prices which may be received by t[illegible] [illegible] producer are shared by t[illegible] growers whose fruit was picked [illegible] shipped at the same time. The o[illegible]tion is absolutely fair and equitable [illegible] all concerned. There is no way [illegible] which a member large or small, [illegible] obtain an unfair advantage."

Friendly Philosophy

(Continued From Page Four)

and more of our commercial farm pr[illegible]duction will be handled in this way.

Perhaps, indeed, the University a[illegible] Agricultural Extension Service [illegible] the very U. S. Department of Agri[illegible]ture itself is "barking up the wr[illegible] tree" in still advocating the old fa[illegible]ioned idea that in order to have [illegible] stable civilization we must make f[illegible]ing the ideal vocation and environm[illegible] for the FAMILY!

SENTIMENT AND BUSINESS [illegible] attempt to mix sentiment [illegible] business usually results in [illegible] or [illegible] other being crowded out, that is w[illegible] "Big Business" as we know it has [illegible] reputation of being a "cold blood[illegible] proposition. Then if farming is a bu[illegible]ness, why is it subject to different [illegible] than other types of business?

Perhaps, after all, the ultim[illegible] development will be along the two li[illegible] we have cited: First small scale [illegible]duction or minor products on [illegible] priced acreage, cultivated in s[illegible] tracts by city workers or "little [illegible]ers"; and, second, large scale prod[illegible]tion of commercial products on chea[illegible] land in districts less favored as [illegible] living conditions. This [illegible] agriculture will be carried on by f[illegible]cially sound corporations or compa[illegible] using the full power of modern [illegible]chinery, orderly marketing and [illegible] management, to pay good interest [illegible] the money invested.

WHAT OF THE FAMILY?—W[illegible] that great institution the A[illegible]can family, acknowledged the [illegible]est stabilizing factor in our [illegible] life, suffer or gain by such [illegible] Unquestionably the families of those engaged in agriculture would [illegible] For it would do away with th[illegible]tion, discomforts and drudgery of f[illegible] life as our fathers and grandf[illegible] knew it. We wonder what op[illegible] readers have on this inter[illegible] ject.

Now, to return briefly to the [illegible] tranching district where this [illegible] written—the Santa Clara Valley [illegible] Heart's Delight—is in the [illegible] stage now. It is changing from [illegible] cultural to the suburban stat[illegible] the change is not without its [illegible] consequences. But of this and [illegible] [illegible]

Veteran Teacher Finds Orange Trees Apt Pupils

Plants First Orchard Forty-seven Years Ago—Tests Various Methods of Soil Improvement

By O. H. BARNHILL

FORTY-SEVEN years ago a school district was formed in the Lugonia section, 65 miles east of Los Angeles, and George W. Beattie, a youth still in his teens, employed to teach the children "the three R's—readin', 'ritin' and 'rithmetic." At the end of the first year the youthful instructor invested his slender savings in orange trees, which he planted on the home place of 20 acres.

Young Beattie had heard that, "As the twig is bent, so the tree is inclined," and figured that his experience in training young minds would enable him successfully to bring up an orchard which would brighten the closing years of his life with golden globes of luscious fruit. Now, as he approaches three-score-and-ten, he is surrounded by a sub-tropical grove of his growing, which not only is pleasant to look at but yields a comfortable livelihood as well.

PIONEER IN INDUSTRY

"No, these are not the first orange trees I planted," explained Beattie. "Those were set out in 1877 where the city of Redlands now stands. The first orange trees in this part of the country were planted by Anson Van Leuben, west of Redlands, near the San Bernardino mission station, a branch of the San Gabriel Mission. The Lugonia District, where Redlands now stands, was named after the Lugo Brothers, to whom the Mexican government granted most of the good land in this part of the country. In 1851 they sold it to the Mormon Church, which disposed of it six years later."

This pioneer grower in 1877 planted orange trees where the city of Redlands now stands. Part of his home grove is 42 yrs. old.

In 1882—forty-two years ago—Beattie planted the first navel orange trees on the Highland Bench, on the opposite side of the valley from Redlands. These trees are still standing on his home place and bear profitable crops of fruit.

Although this pioneer orchardist has owned orange trees for nearly a half century, he has not spent all of his time caring for them, preferring to devote a portion of his energies to other pursuits. He filled various county offices, including a four-year term as county superintendent. In 1901 he went to the Philippines to take charge of the Manila Normal Schools. After [illegible] of college work in the islands he returned to America and spent six years at the University of California, [illegible] chemistry and studying various subjects. For a year and a half during the late war he was chairman of the [illegible] Board.

[illegible] Beattie always kept his feet in [illegible], preferring country life and [illegible] work to all others. For [illegible] 2[illegible]e citrus orchard, [illegible] of which he set out in 1882, near [illegible] has been his home and [illegible] to spend the remainder [illegible] know [illegible] consider [illegible] useful [illegible]. He took [illegible] constructing the [illegible] system, which [illegible] of the world's [illegible] known as [illegible] and suc[illegible] the Redlands [illegible]

In common with Nusbickel and many other horticultural authorities, Beattie believes that bud selection plays a very important part in citrus success. In support of this theory, he points to the comparative tests conducted by A. D. Shamel, of the U. S. Department of Agriculture, at the Riverside Experiment Station.

"After securing a superior strain of nursery stock, the next step is to plant it in a suitable location," states this experienced grower. "Immense areas of California land which should be producing other crops are planted to orange and lemon trees. These orchards are not profitable and never can be made to earn any real money for their owners, simply because soil and climatic conditions are unfavorable.

"The Redlands District ships 5000 carloads of oranges annually, more than any other place in the world. This Highland Bench is in the thermal belt, being comparatively frost free. During the cold spell last winter the temperature at my place averaged six to seven degrees higher than on lower land a mile south. But when a cold north wind blows the altitude makes little difference and the high and low alike suffer losses."

SUCCESSFUL SOIL SHOOTING

Given a plentiful supply of water, soil problems are the chief ones citrus growers are called upon to solve. While it is comparatively easy to raise a fair crop of good fruit, nothing but maximum production of first-class goods will yield a profit on high-priced land, a fact many growers do not seem to realize.

"Not only must plant food of the right kind and in the proper quantity be supplied, but it is essential that soil be kept in proper tilth and texture," Beattie points out. "Sometimes examination of the ground in which an unprofitable tree is standing will disclose subsoil so hard it is impervious to root penetration, resulting in slow starvation and strangulation of the tree.

"The ground around a tree, which for 16 years has been deteriorating, was loosened with dynamite, four holes being punched about six feet from the trunk and a stick of powder being placed in each and exploded. Almost immediately afterwards the tree began to 'pick up' and ever since has been improving. Sand was poured into the holes to keep the ground from compacting again.

"Other trees are to be 'shot.' In planting five acres of trees on ground underlaid with hardpan, holes four feet square were dug and the solid subsoil loosened with dynamite, some holes requiring a half-dozen shots."

SAND LOOSENS GROUND

In some cases the surface soil is loosened up with liberal applications of sand. This method of soil amendment was tried with great success near Smiley Heights on the red clay ground from which Redlands takes its name. As a result of a top-dressing of six inches of river sand and silt, the per tree yield of fruit was increased from two to eight or ten boxes.

The soil fertility nut has been found a hard one to crack and no method has yet been found to extract all the merit [illegible] considered very desir[illegible]

able if enough can be obtained at right prices—but there's the rub! Meliiotus indica is a deservedly popular winter cover crop, but when grown for many successive years on the same land is crowded out by chick weed. This plant pest makes serious inroads even on purple vetch, another splendid cover crop.

Sweet clover—melilotus alba—is a fine summer cover crop, but needs a great deal of water. It is a biennial and should be sowed in the spring. Planting only every alternate middle to this crop is considered the best practice. Clipping twice the first season is recommended. The next season this clover makes a rank growth and the roots penetrate deeply into the soil, something like alfalfa. Hubam, an annual sweet clover, has been found very satisfactory. Cow peas are good for summer sowing.

ALFALFA FOR FERTILIZER

"Bean straw and alfalfa hay are fine fertilizers, but the latter is hard to work into the soil," declares this veteran orchardist. "Sometimes hay is shredded by machinery, but this makes the material so bulky that a sufficiently large container is difficult to move in an orchard where the trees occupy most of the ground.

"It would be better if the hay were chopped up before being baled, as this would facilitate handling and render it easier to incorporate into the soil.

"Nitrate of lime is our most satisfactory mineral fertilizer. Sulphate of ammonia is good. The element our soils need most is nitrogen. We have used tankage, dried blood, sheep manure and even cottonseed meal. The latter is too high-priced now, but before the war it could be bought for \$30 to \$40 a ton."

"I agree with Neighbor Thompson that, as a rule, it is a mistake to combine animal husbandry with fruit growing. Chickens in an orchard may seem like an ideal arrangement, but one of our Highland growers has found the fowls do more harm than good, destroying the cover crop, compacting the soil and exterminating angle worms, which are a great help in keeping soil porous."

An average yield on the Beattie orchard is about 325 packed boxes per acre. Orange growers are not making any money this year, and in 1913 and 1917 they lost money, states the owner, who sometimes receives less for his fruit growing than the government paid him for teaching, even including interest on investment. Three thousand dollars per acre, the price at which many groves changed hands a few years ago, is considered more than a good orange orchard is worth, \$2000 being about all a man can pay and earn a profit on his investment.

"Economic pressure is forcing many little fellows out of the orange game," admits Beattie. "A single large grower in this district has bought up 600 acres of small groves. Most of his orchard operations are performed by workers living at a central camp, which may be good business, but is bad for the country.

TREND OF CITRICULTURE

"Look at this picture," pointing to a photograph showing a number of children standing in front of a country school house. "Note the large percentage of foreign faces. I kept my boy and girl there until they finished the grades, but often I was sorely tempted to send them to a school where there were more American children. My son is now in Redlands High School and my daughter is a student in Pomona College."

The Beatties find country life increasingly lonesome, because of the consolidation of orchard holdings, but do not wish to leave the land they love and which they have labored long to convert from a barren desert into a semi-tropical paradise. Their house is surrounded with many beautiful shrubs and flowers, while a great variety of common and strange fruits add to the pleasure of their country life.

Writing history is Beattie's hobby. In collaboration with his talented wife, he has written a number of chapters of pioneer life not only in California but in Kentucky and other Eastern States. These interesting true stories are published by State historical societies and require an immense amount of research work, yet the authors receive no financial remuneration, considering their work a labor of love. Mrs. Beattie is a fiction writer of considerable talent and both she and her husband find literature and horticulture a very enjoyable combination.

Vacations Pay Farmers

FOR my own part I want to say that I consider an annual vacation for the farmer as a business proposition, writes J. R. Howard in the Marin County Farm Bureau Monthly. Successful agriculture is as much a matter of mental activity as it is physical and the brain work of farming is too little appreciated.

The most productive investment of the year on my own farm is that spent in an annual outing—not only for my own family, but for those who are employes or tenants. It is returned many times over because of the better application to the job in hand on the return home and because the new contacts made and ideas gained are made use of in the better management of the farmstead.

The Beatties are so much in love with citriculture and country life they maintain their residence in the midst of an orange grove; most of their neighbors have moved to town. Writing history and fiction are their hobbies.

Water—*key to* Plant Wealth

Lack of rain holds no terrors for the farmer who has a "head" of water like this. Here is an example of ideal slope achieved by careful grading.

This view of a concrete-lined ditch indicates one way of safeguarding the key which unlocks plant wealth. In the San Joaquin Valley this improvement is being made just as fast as finances will permit. One district is spending over a half million dollars bettering its irrigation system and estimates that lining 50 miles of ditches will save $125,000 worth of water annually.

Pumping water with electricity, a common California method of obtaining water for irrigation. It has the advantage of always being under control of the owner, enabling him to water his crops when needed, with liquid free from weed seed.

This headgate has been installed to regulate the flow of water. In arid regions water is considered a commodity, being measured, bought and sold as an article of merchandise.

Above—old-fashioned irrigation ditch, the kind that is being replaced with narrower, concrete-lined canals. Left — Concrete spillway, to take care of surplus water. Uncontrolled water is worse than none at all. Floods and seepage must be carefully provided for.

Right—Modern irrigation dam, showing method of bracing. This is part of San Diego County's water system, joining Lake Hodges.

ORCHARD and FARM

JULY 13, 1924

Oranges and Onions—A Visit to Valencia

Spanish Growing, Packing, Marketing Methods Compared to California's

By W. V. CRUESS

Associate Professor of Fruit Products, University of California, Berkeley

VALENCIA is one of the garden spots of Spain and a beautiful example of the transformation by irrigation of a desert waste into a prosperous agricultural community. True, the placing of water on the land in the province of Valencia is not a recent happening; the Moors of the Middle Ages and the Romans and natives before the Moors irrigated their fields and groves.

So dry is this section naturally that the broad dry bed of a local river passing through the town is used for football fields and gardens; and there is no record that any of these have been flooded; the "river" is dry winter and summer, even exceeding in its aridity the much-abused Los Angeles River.

Yet for many miles inland and along the coastal plain in either direction from the port the visitor may ride through groves of oranges, fields of rice and gardens of onions, pimientos and other vegetables and is apt to forget that without water from the distant mountains, the principal products of this district would be climate, blue skies and beautiful sunsets. But thanks to water and its efficient use, Valencia returns by her exports many millions of pesetas to King Alfonso's needy realm.

We regret our stay in Valencia was so brief, and that for this reason our account of its agriculture must be sketchy rather than detailed and critical. A week is all too short a visit.

The history of the orange in Spain is not as clearly chronicled as is that of Ferdinand and Isabella and little that is definite is known of the beginnings of its culture. Nevertheless, U. S. Consul Harmden in a report on the orange industry of Spain states that it is fairly certain oranges were grown in Spain by the Romans, while orange culture was greatly increased under the Moors from the eighth century until their final overthrow.

Lemons were introduced during the twelfth century and Mandarin oranges in the nineteenth century.

Development of the British market in the third decade of the nineteenth century stimulated planting, and expansion of this market has been the principal basis for rapid growth of the bearing area in recent years.

Seville, Castellon and Murcia provinces also produce oranges, but less than Valencia. Seville's oranges are chiefly of bitter varieties and are used only for marmalade. According to Consul Harmden's report the annual exportations of oranges from Valencia from 1919 to 1924, inclusive, have been as follows:

1919-1920	2,555,856 half cases
1920-1921	6,151,608 half cases
1921-1922	8,518,586 half cases
1922-1923	11,135,000 half cases
1923-1924	12,000,000 (estimated)

A half case weighs about 80 pounds; roughly equal to a California box of oranges.

It is extremely difficult to obtain accurate data upon the number of half cases exported to each country, but the following estimates for the 1923-1924 season are reasonably close to the actual figures.

England	7,000,000 half cases
Belgium	760,000 half cases
Denmark	160,000 half cases
Sweden	135,000 half cases
Norway	200,000 half cases
Germany	150,000 half cases
Total	11,135,000 half cases

In spite of the floods of the Rio de Jucar in November, which destroyed and damaged a great deal of bearing orchard and reduced the crop by at least 1,000,000 half cases, this season's crop probably will exceed 12,000,000 half cases or an increase of nearly [illegible] per cent above the preceding crop. This river rises in a distant mountain range and is not a local stream.

Planting has been extensive during the past few years, new bearing [illegible] age is rapidly increasing production [illegible] Don Orange Grower is worried, even as some of his California friends are [illegible] times just a little perturbed about the future. However, one hears the [illegible] words, "Underconsumption rather than overproduction is our principal difficulty." True it is—Valencia does not have a California Fruit Growers' Exchange with its Sun Kist brand to persuade the fruit hungry millions of Europe that they should eat Valencia oranges. Perhaps necessity, as it did in California, will force the Valencians to organize and advertise.

On December 6 the Valencia [illegible] papers reported average [illegible] chester, Eng- (Continued on Page [illegible])

"Half cases" of Valencia oranges, showing rope binding. This Spanish citrus district will produce this year about 12,000,000 such boxes, roughly equal to the California shipping box.

Loading oranges at the quay in Valencia. England is the heaviest consumer of Spanish oranges, taking annually about 7,000,000 half cases from Valencia alone. Orange growing is supposed to have been introduced into Spain centuries ago by the Romans.

A typical Spanish cart. The Valenciano prefers horses to oxen for transporting agricultural products. A striking contrast to motor trucks.

Harvesting and weighing oranges at Algamesi, near Valencia. Note baskets used for handling fruit. "Underconsumption" is a big problem.

These long cribs near Valencia are used for storing "Grano" onions. The Spanish onion industry has attained impressive proportions. Production methods are described in the accompanying article.

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
JULY 13, 1924

The "Water Cure" for Transportation Problems

Inability to Finance Grower-owned Refrigerator Ship Line Fails to Dampen Enthusiasm of Producers for Ocean Transport—Plans Under Way

THERE is something fascinating in the thought of a great refrigerator-ship, capable of delivering to New York City in less than two weeks several thousand tons of fresh California fruits—sweet, ripe and ready to eat. The possibilites intrigue our imagination.

Perhaps that is why there was such widespread interest in the proposed grower-owned and controlled boat line unsuccessfuly promoted about two years ago. The subject has been agitated at different times but until recently there seemed little prospect of ever having available sufficient real refrigerator vessels to make an impression on either the crop or the railroads.

At present, however, ORCHARD and FARM is informed there is every reason to believe a privately owned and managed company, dealing by contract with the larger co-operative associations, soon will be launched. This company in its turn will do some launching in the form of five ships, equipped with every modern facility for fruit transportation and having powerful Diesel engines, giving a speed of 15 to 16 knots. Such boats could "make" New York, via the Panama Canal, in 12 days from Los Angeles or 14 days from San Francisco.

It will be necessary to either build or rebuild vessels for this trade, inasmuch as there is said to be none available which has both the ammonia cooling plant and the cold air circulating system necessary to keep fresh fruits in good condition for the hot trip through the Canal.

The nearest approach to this type of vessel, according to those who know, is found in the banana fleet of the United Fruit Company, but even these would not properly serve our purpose, it is claimed.

WATER SHIPPING LIVE TOPIC

But why should California growers be interested in moving their grapes, peaches, plums and other products over the briny deep? Have the railroads fallen down on the job? Are overland rates exorbitant?

These questions were put to Fred N. Bigelow, former State Marketing Director and a close student of water transportation.

"Aside from any question of rates," said Bigelow, "we all know of the losses suffered by growers through inability to get sufficient refrigerator cars to move their fresh fruits, and difficulty in moving freight at Eastern terminals.

"Year before last the estimated loss was $10,000,000, and last year at least $6,000,000. The railroads are still behind in their building program, and congestion will be serious again this season. Granted that sufficient refrigerator cars finally may be available, there is yet the probability of tie-ups in the East and often it is impossible to get the empty cars returned promptly."

Bigelow points out that of 214,000 cars of fresh fruit and vegetables shipped in California last year, less than 8 per cent was consumed here. At the peak of the shipping season some 55,000 cars were poured into the "neck of the transportation bottle" (Chicago), resulting in almost hopeless congestion at this point.

When it is considered also that other States are making constantly increasing demands for refrigerator cars, it will be seen there is little hope of immediate relief. Oregon, Washington and Idaho now are said to ship upwards of 25,000 cars of apples annually. The Southern States, too, are developing their fresh fruit and vegetable business rapidly. Florida, alone, is a big factor in this field.

Certainly it would appear there is an excellent opportunity for a California fresh fruit line, whether owned by the growers or not. It was in financing that the former project fell by the wayside, but the promoters of the new company express confidence in their ability to secure adequate backing.

It is planned to have five boats in year-around service, each making six or seven trips annually. Because of the space occupied by the refrigerating equipment, a 9000-ton boat will carry only about 5000 tons of cargo. However, it is believed sufficient business can be obtained in commercial lines to make the return trips profitable.

It will be seen five such vessels would handle about 175,000 tons of fresh fruits vegetables and eggs annually, a small proportion of the total shipments of more than two and one-half million tons, yet sufficient to relieve the congestion considerably and to take care of the surplus formerly lost through spoilage.

Middle-western farmers should welcome the innovation, inasmuch as it would relieve the railroads and thus render the carriers more capable of handling their produce efficiently. So argue the advocates of the plan.

Water Carries California Crops to Market

Headed towards the Golden Gate, open door to the markets of the world, great liners daily ply the waters of beautiful San Francisco Bay. Los Angeles and San Diego, too, send a steady stream of California products to the Orient and the Antipodes or through the Panama Canal. If present plans mature, a number of specially-built refrigerator ships will be in service in time to handle 175,000 tons of the 1925 fresh fruit and vegetable crop. Growers are awaiting developments with intense interest.

Illustration courtesy Matson Navigation Co., San Francisco

LIMITED AREA SECURED

It is estimated our ocean-transported produce could not be delivered more than 50 to 100 miles west of the Atlantic seaboard; in fact, it is believed the cargoes of the five proposed ships would be consumed in the cities of New York, Boston and Philadelphia.

Would not the boats be idle part of the year? "No," says Bigelow, "because there is something produced in California every month. The peak of citrus shipments comes in April and May and again in November. During June and July there are semi-perishables, such as certain vegetables (particularly cantaloupes), and early fresh fruits."

During August, September and October, grapes and apples would constitute the bulk of the tonnage and by then it would be time for the winter orange campaign. Eggs, both fresh and stored, could be counted upon practically the year around, it is pointed out.

Present plans are to secure cargoes not only from California, but from the entire Pacific Coast, and thus no difficulty is anticipated in keeping the boats busy.

A capitalization of $10,000,000 and an investment in equipment of nearly this amount, if present plans mature, will indicate the new navigation company's faith in the agricultural future of the Pacific Coast.

In addition to the prevention of losses such as we have experienced during the past two years, it is estimated the refrigerator line will effect a saving of 25 to 30 per cent in freight charges.

California Farmers Are Finding Sheep Husbandry Profitable

Reasons Why Ovine Agriculture Pays Good Dividends—Small Flocks Money Makers

By R. F. Miller
Associate Professor of Animal Husbandry, University of California

CALIFORNIA always has played a prominent part in the production of sheep and wool. Spanish sheep were introduced into the State as early as 1773 and increased rapidly under the care of the Catholic priests in charge of the missions. Special laws were passed, providing that only a good grade of sheep be selected and propagated. Every settler at the Mission San Jose was compelled to keep three sheep to every other animal.

In 1796 200 sheep were distributed at Los Angeles and in 1797 there were over 6000 head of Merino sheep at San Francisco. In [illegible] there were over a million sheep kept at the seventeen missions, extending from San Francisco to San Diego. In 1876 the banner sheep year, there were 6,406,465 sheep in California. The number has gradually decreased, however, until at the present time there are about 2,500,000 [illegible] in the State.

During the past five years many [illegible] have become interested in [illegible] and now maintain flocks of 50 [illegible] 100 ewes. In most cases they be[illegible] by buying only 10 or 20 bred [illegible] [illegible] these were old [illegible] longer useful on the range. [illegible] these farm flocks [illegible] profitable investment.

There is room, however, for a great many more farm flocks, since California is so well adapted to sheep raising. In Great Britain, for instance, there are 235 sheep per square mile and they are mostly kept on small farms, while in California there are only 16 sheep per square mile.

Here are some of the reasons why sheep are a valuable asset to the California farmer:

1. The farmer looks first to the cash returns from a contemplated crop. Sheep return two cash crops annually: wool and mutton. A good grade ewe 2 or 3 years old will cost about $10. The average wool clip is about 8 pounds, worth 35 cents a pound. Spring lambs have been selling from $6.50 to $8.00 a piece, making a gross return of about $10.00. Considering that it costs from $1.00 to $3.00 a year to keep a ewe this leaves a net return of $5.00 per ewe on a $10.00 investment.

2. The cash income during the spring or early summer from the sale of the lambs and wool comes at an opportune time to take care of labor bills incurred in planting, seeding and haying. The farmer's main income usually comes in the fall at harvest time and he often is obliged to negotiate a loan from the bank to meet current expenses during the spring.

3. Sheep are cheaply kept under farm conditions, since nearly every farm has a certain amount of waste land suitable only for pasture. The irrigation ditches afford a great deal of feed when properly fenced. Then there is the orchard, summer fallow ground, the lanes and fence corners and small areas about the farmstead where sheep may be run to advantage and clean up the weeds. They will consume practically all types of weeds, particularly if confined to small areas, and thus keep the place clean.

4. Sheep do not require a great deal of attention, except at lambing time, which comes during the winter or early spring, before field work is urgent. One man conveniently can take care of 500 ewes. It must be said, however, that all too often sheep are neglected and fairly allowed to shift for themselves, which invariably results in loss.

5. Sheep do not require expensive barns for shelter, although some provision should be made for protection and proper handling at lambing time; also for storage of hay for winter feeding, which is necessary in practically all cases.

6. Returns with sheep come quickly, since lambs usually are marketed at the age of 4 or 5 months, or 9 months after the ewes are bred. In most parts of California fall shearing is practiced and the farmer has an income from wool, both in the spring and in the fall.

7. Sheep manure is very valuable, as it is high in fertilizing ingredients, particularly nitrogen, something the soil generally needs. Sheep have been known to restore soil fertility in a short time on a worn out farm. The manure is evenly distributed over the fields. Sheep do not tramp the soil and weed seeds eaten by sheep do not germinate.

8. Sheep supply fresh meat for the home, as the average family can readily consume a spring lamb, even in the summer time, without any of the meat spoiling. There *(Continued on Page 10)*

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FRIENDLY PHILOSOPHY
By THE EDITOR

INADEQUATE FOOT-AND MOUTH COMPENSATION — Although this writing finds us in the Sacramento Valley, some distance from quarantined areas, and although the foot-and-mouth disease epidemic is almost past history, it was here that we "listened in" at a discussion concerning a very important aftermath: the question of compensation to owners of condemned animals.

On the whole it appears there has been little open dissatisfaction with the appraisals of grade and range stuff or even lower-priced purebreds. But in the few cases where registered animals of great value were condemned, some feeling has arisen over this delicate question.

In one case at least, an unauthenticated story was given wide publicity to the effect that an exorbitant valuation had been placed upon a herd. Later investigation showed the owner had accepted the actual appraisal under protest and had paid for the mature stock alone more than the total amount offered him for his entire herd, including young stuff. Some of these cases now are under advisement.

WHAT ABOUT UNCLE SAM?—In the case of uncontested claims, prompt payment of the Government's share is reported by most owners. The State, however, lacking funds and unable even to borrow the money at this writing, still lags in fulfilling its share of the obligation to some of the victims of the outbreak.

Yet, despite Uncle Sam's prompt settlement with local stockmen in this emergency, it is of him that the breeders of purebreds are demanding fair treatment now and adequate remuneration in the case of future outbreaks.

Purebred livestock circles, aided by such influential leaders as the deans of the agricultural colleges, officers of record associations, and wealthy breeders throughout the country, have started a determined campaign to enforce recognition of their demands for higher appraisals. This movement is not without opposition.

LOGICAL REASONS ADVANCED—Some there are, even among the stockmen, but particularly among the tax-paying masses known as the "general public," who express determination to oppose appraisal at true value of high-class registered stock. They maintain it is impossible to arrive at any true valuation, insist purebred prices have been artificially bolstered up, and denounce breeders who demand more money than is accorded owners of common animals.

Logical reasons, however, are advanced by the breeders to back up their demands. In this connection some figures compiled by Charlie Hughes of Sacramento, secretary of the California Holstein Breeders' Association, are especially interesting.

Hughes maintains that since the Federal Government has encouraged the improvement of all breeds and thus stimulated the demand for registered sires, it is therefore responsible in great measure for the valuation placed upon such animals, and cannot logically refuse to recognize their greater worth.

STATISTICS DEMONSTRATE IMPROVEMENT—Realizing, however, that in order to secure favorable action, the breeders would have to offer proof of higher value, aside from prices paid or received for animals, Hughes delved, with striking results, into milk production records of the leading dairy breeds. It was found *(Continued on Page 10)*

WHAT'S NEW? *Keeping Abreast of* Agricultural Progress

Getting Ice Cream Habit

CALIFORNIANS are getting the ice cream habit firmly established, judging by the fact that each one consumes annually 10 quarts of this frozen dainty, while the average person in the United States eats only seven quarts and the Texans less than four quarts. Only six States make more ice cream than California, which annually manufactures 34,460,000 quarts.

California Holsteins Lead

ONE-FOURTH—14—of all the Holstein cows in the United States that have given 15 tons to milk, or more, in a year, have been developed in California. Fifteen—18 per cent—of all the cows in the 1000-pounds-of-butterfat class, have been produced in the Golden State, according to C. L. Hughes. One of the latest cows to make both records is Stratford Pledge De Kol, owned by Frank M. Helm of Fresno.

Free Figs for Candy Making

THE 15 members of the Home Evaporator Club of the Orland High School were, by Glenn County fruit growers, given all the June figs they wanted for candy making, as there is no market for the first crop, according to the Extension Service.

Large quantities of black figs are sold fresh in Southern California during June, retailing for 20 to 30 cents a pound. Dealers assert that if the crop were allowed fully to ripen and very slightly dried much larger amounts could be sold.

Will Subdivide Palo Verde

RECENTLY 10,000 acres of Palo Verde Valley land were sold for $3,000,000. This immense tract is to be subdivided into five and ten-acre tracts and sold, with water rights, to small farmers.

The Southern California Vineyards Company, purchaser, plans to spend $3,000,000 in planting grapes and Kadota figs on the land, which has been devoted to the growing of alfalfa, cotton, fruits and vegetables.

Last year Palo Verde produced crops worth $6,000,000. Development programs now under way will increase this to $15,000,000, it is estimated.

Beeves Bring High Prices

AS PROOF of the good prices which it is possible to secure for California beef cattle, packers point to a carload of yearling steers which recently sold at the Los Angeles Union Stock Yards for $85 each. The price was $10 per hundredweight, one animal bringing $11. The steers averaged 868 pounds.

This high-priced meat stock consisted of purebred Shorthorns bred by T. S. Glide of Davis. Their ages were from 11 to 13 months. Last fall the calves were weaned on hay and then placed on a ration of rolled barley, oats and alfalfa hay. In finishing, cottonseed cake was added to the ration.

Overcoming the Rat Menace

ANNUAL losses of farm products through damage by rats, mice and other rodents run into alarming figures. One California farmer who stores considerable grain for feed figured that the cost of installing a rat-proof container would be repaid in five years.

His storage bin is of sheet-metal, with rodent-proof doors and cement floor. Wooden bins frequently are safeguarded by elevating upon posts to which are fastened inverted cones of metal as "collars" to prevent climbing. A layer of metal or cement over an old wooden floor also helps to foil the army of four-footed invaders. Those who have taken even this precaution say it pays in dollars-and-cents savings.

Don't Over-rate Pumpkins

INCREASING use of pumpkins as stock feed led to an investigation by a California dairyman of their feed value. Comparison of analyses showed that ordinary field pumpkins, including the seeds, have a feeding value approximately one-third that of corn silage.

One ton of pumpkins, it was found, equals in digestible nutrients, about 750 pounds of corn silage, or 300 to 400 pounds of mixed hay.

It is pointed out the stockman should take into consideration the relatively low feeding value of the pumpkins and supplement them with concentrates or alfalfa. The succulence of pumpkins, however, is conceded to be an important attribute, especially where no silage or green pasture is available.

Mendocino Makes Progress

ALTHOUGH many California counties have a much larger total production of agricultural products than Mendocino, there are numerous progressive farmers in the mountain valleys tributary to Ukiah and under the able leadership of C. S. Myszka, farm adviser, they are developing a high type of plant and animal production.

During the month of May the following outstanding activities of the Extension Service in this district were recorded:

Pear inarching demonstrations showed splendid results; boys' agricultural club decided to continue egg production contest; value of long pruning demonstrated, 40 farmers saw successful test of rye and vetch as cover crop; three potato improvement plots established at Willits; demonstration Farm Bureau silo constructed at Point Arena.

Fertilizer From Arizona

CHARLES F. HANSON, Phoenix mining engineer, has discovered in Arizona immense deposits of bird manure—many thousands of tons—which is available for field and orchard fertilization in the Southwest. The supplies of water and fertilizer are the limiting factors in California and Arizona agriculture, therefore considerable local importance attaches to this find.

Kings Tests Rhodes Grass

RHODES grass did not come through the past severe winter in very good shape in Kings County, but is proving its ability to thrive on alkali land. By irrigation, four cuttings of one ton each may be expected, according to Wallace Sullivan, farm adviser. If the last cutting is left on the ground for protection, it is thought there will be little injury from frost.

Tread Mills for Exercise

OF VARIOUS methods for exercising the herd sire, many dairymen prefer the tread mill. In fact, so great is the demand for this device that an Eastern concern is manufacturing it in considerable numbers. In some instances a pulley, operated by the tread, is used to transmit power to a feed grinder and thus "his lordship" helps prepare the dairy or poultry ration while working off excess energy.

Drinking More Orange Juice

THE 20,000 Sunkist juice extractors, which it is estimated will be in use in the United States by the end of this year, will use a million boxes of oranges and lemons annually, making 200,000,000 drinks. This quantity of beverage will sell for $20,000,000, estimates the California Fruit Growers' Exchange.

Last year 7000 extractors were sold and 5565 were disposed of the first half of the present year, indicating a rapidly increasing demand for citrus juices by the American public.

New Sun Maid Payment Plan

RECENTLY the Sun Maid Raisin Growers' Association devised a plan whereby the liabilities of the old corporation will be paid in full, without any possibility of members of the new organization being forced to meet this indebtedness, which amounts to $4,250,000, being the over advance on the 1922 raisin crop.

"It would be unthinkable," asserts Ralph P. Merritt, "to attempt to collect so large a sum from our members."

Nevertheless, such bill-backs as are held against those who are not members of the new organization will have to be collected, because there is no way for the Association to absorb this indebtedness.

THEY SAY
"Bankers Aid Agriculture"

D. T. BATCHELDER

D. T. BATCHELDER
Farm Adviser
Santa Barbara County

THE banker, because of his influence in his community, can and should be of great help to agricultural leaders and teachers.

Especially in dealing with foreigners is the banker's assistance valuable. In Santa Barbara County we have particularly appreciated the support of the financiers in the northern section, where otherwise it would have been difficult to establish cow testing and other improved dairy methods among Swiss and other nationalities.

By showing facts and figures and thus giving the banker definite proof that his clients will benefit by testing, it is possible, even though he himself is not thoroughly posted on advanced agricultural methods, to enlist his enthusiastic support.

In fact, in many cases, the banks see the wisdom of foreing participation in testing and other Farm Bureau work.

It frequently happens that the bank is in fact the real owner of the cattle and equipment, and consequently is in a position to dictate the policy of its client. In the case of a foreigner he may look to his bank for advice on all matters pertaining to his business.

Fortunately for California, most of the bankers in the towns and smaller cities, who make agricultural loans, are well posted on advanced methods, and if once "sold the idea" will be behind any movement for the good of their customers and communities.

There is room for still more work along this line, however. In fact, farm leaders realize now that it is possible, through the banks, to do things which could not be accomplished in any other way.

BOB JONES' CORNER

Little Stories of Farming

By ROBERT E. JONES

[Editor's Note—Mr. Jones, who is manager of the Pacific Slope Dairy Show and an executive of the Dairy Council, returns to California and the columns of ORCHARD and FARM after an absence of several months in Florida. He is preparing, for early publication, informative articles comparing agricultural conditions in the two States.]

A MILLION DON'T BELIEVE IT—Oscar Smith, writing for The Florida Grower, and trying to compare Florida and California, asserts that in the summer our interior valleys "are no place for a white man to live." Of course, Oscar is either ignorant or purposely misrepresents, and doubtless the editor of The Grower regrets that such an insane statement got through.

Nobody ever gets anywhere by untruth and Oscar's declaration will not keep white men from flocking to our great agricultural valleys. However, his statement stimulated my interest and I looked up some figures. Our Sacramento and San Joaquin Valleys have a population of a million white people (which is more than Florida's total population, black and white) and these valleys produce annually about $370,000,000 worth of field, tree and livestock products which is three times the total agricultural production of the State of Florida. These figures are submitted with all kindness and not with the idea of belittling Florida, which I consider a State of great possibilities. More about that later.

EFFICIENCY IN MARKETING—A fine tribute to the efficiency of the California Milk Producers' Association of Los Angeles is to be found in a recent issue of the Federal Department "Agricultural Co-operation" reports. This states that the $5,000,000 business of the organization was handled at a cost of 1 1-5 per cent (one and one-fifth). Manager Tom Brice, along with President Ben Rhoades and Vice President George R. Frampton, have a right to be proud of this record. There are few organizations in America that can approach it.

COWS AND CIGARETTES—The complexity of modern life is always a matter of absorbing interest. The dairy industry has entered fully into the modern scheme of things and today even the cigaret smoker pays tribute to the dairy cow, for his "smokes" are sealed with casein glue. Down in the everglades of Florida, tomato growers use a casein preparation in their insecticides to make the poison more efficient in killing bugs, and here in California it is finding ever increasing favor with our orchardists. In using this well-known product they pay tribute to the California dairymen and manufacturers. California made nearly $650,000 worth of casein last year. In addition to the uses mentioned above, casein goes into buttons, a coating for paper, cold-water paint, shoe polish, soap, imitation ivory and insulating material.

THE DAIRY BUREAU LAUNCHED—Dairy people of California are particularly gratified at the passage by both Houses of Congress and the signing by President Coolidge of the Dairy Bureau Bill. This measure puts the present "Dairy Division" on a bureau with the Bureau of Animal Industry, of which it is now a part. An industry which last year produced $2,-[illegible]87,000 in agricultural wealth is [illegible] worthy of a bureau status. A Californian by adoption, B. H. Rawl, [illegible] the credit for the idea and [illegible] of energy which led to the [illegible] of this progressive law, though he would be the last to claim it. Rawl [illegible] Chief of the Dairy Division and is now assistant general [illegible] of the Golden State Milk [illegible] Company. California dairy [illegible] are hoping that Dr. [illegible] chief of the Dairy Division [illegible] to lead of the [illegible]

MORE STORAGE AND SAFETY—[illegible] of [illegible] making safe and more productive those acres we have under cultivation. For many years it has been our pride to parade the mounting figures of California acres "under ditch." We have viewed the thing in an expansive, sweeping way, with two little regard to safety and efficiency.

The present dry season shows very clearly that we shall have to go back and build stronger at the fountain head. "More storage" should be the slogan of our agriculture, for we are so definitely dependent upon water for irrigation.

The water is here. It flows each winter through Sacramento and San Joaquin Valley streams to the sea. Now we need that water badly. Only greater storage can make these acres under ditch safely productive and more productive. And it certainly is a greater economic benefit to California to make safe those lands already settled and planted, than to reclaim more lands, which might not be settled for years, and would place a greater strain on our water supply. There is plenty of water, even in a dry season, but we need the reservoirs to save it.

SOME CREDIT TO HUMAN AGENCIES—"Our marvelous natural advantages" is a phrase that does not mean as much to me as it used to mean. Perhaps the change is the result of broader experience and seasoning. I have seen some "marvelous natural advantages" elsewhere which are the peer of those in California, if not superior, in some respects; yet they have not been put to progressive use.

I am convinced that we must pay high tribute for our California agricultural growth to the vision, enthusiasm, energy and faith of the men and women who settled in this Golden State. Certainly more credit is due to the agricultural pioneers and those who have carried on after them than to the "marvelous natural advantages," of which we are so fond of speaking.

There is more of human intelligence and energy in California's growth than we have thought. Of course, "Life is better" here, as Ed Persons says, but let's take some of the credit to ourselves and not give it all to nature.

DID YOU GET YOURS?—The per capita consumption of ice cream in California is 2½ gallons a year. Did you have your two-and-a-half gallons last year? If not, you did not get your share. But people of the United States as a whole eat only 1.7 gallons of ice cream a year, showing that California again leads the field.

We know also that Californians eat more butter than the people of any other State of the Union, and that Californians drink milk in more generous quantities.

The ice cream industry of the Pacific Slope will participate 100 per cent in the Pacific Slope Dairy Show at Oakland this year, December 10-16, inclusive. Both the Pacific and the California and Southwestern States Associations will hold their annual conventions at the show.

Fruit Experts Are Busy

PROF. W. V. CRUESS, head of the fruit product laboratory of the University of California, is being literally overwhelmed with requests for assistance in improving processes for handling fruit products and in devising methods for working up fruits that now go to waste. He states that a staff of sixteen helpers would have all they could do to solve the problems put up to his department.

His office has perfected most of the processes for successful dehydration, and at present one man is kept busy adjusting commercial dehydrators. The writer has been investigating the candying of figs. Prof. Cruess states there are five ways in which candied figs can "go wrong," but all of them can be avoided by one who understands the process. Thus we see how experts are of great value in helping farmers and fruit associations do things right.—TULARE FARMER.

COWS BUILD GOOD ROADS

In Wisconsin, which is the greatest dairy State in the Union, there are thirteen miles of paved road to every one mile of paved road in Missouri. Why is it? Simply because Wisconsin follows diversified farming with a few good dairy cows on practically every farm, and Missouri follows more generally only one type of farming—either corn growing or wheat raising, or some other specialty, with considerably fewer and decidedly poorer cows than Wisconsin. In Missouri the average cow gives approximately 2000 pounds of milk a year and in Wisconsin the average is over 4000 pounds—twice as much.

Overhead Irrigation Advantages

Twenty Reasons Why This Nature System Is Preferable to Ditch Method for Orchard Watering

By J. ELIOT COIT

IN RECENT years there has been a great increase in the number of installations for overhead irrigation for both citrus and avocado trees. Most of these have given excellent satisfaction. The only drawback to this system is the relatively high first cost. For this reason overhead irrigation is making greater progress with avocado growers than with citrus orchardists.

J. ELIOT COIT

The writer recently installed on a young 31-acre grove a complete overhead system, which is working very well. There is a six-inch riveted steel pipeline running through the center of the tract. From pipe-saddle connections, one and one-half inch galvanized pipe lines run in each direction, being 24 feet apart and 15 inches below ground.

The trees are spaced 24 feet apart and planted directly over these lines. The three-fourth inch upright, which carry the revolving sprinklers are 12 feet high and can be raised when necessary. They are spaced 48 feet apart in each alternate row, staggered.

SYSTEM REQUIRES PRESSURE

Every upright soon will be enclosed by the branches of a tree and be out of the way of cultivation. In this case the water is supplied under high pressure. Where water is not available under pressure it is necessary to install a pressure pump. This can be done for from $600 to $1000, depending on the type of equipment.

The total cost of labor and materials for the job described was $306 per acre. It made unnecessary leveling the land and as it is used in place of the usual irrigating system it is only fair to subtract $50 per acre as the usual cost of these items and conclude that the overhead cost $256 more than the ordinary way.

There is no longer any question but that overhead irrigation is good for citrus and avocado trees, for there are several instances where this system has been in operation for ten years and the trees certainly are thriving. Apparently it does trees good to have the foliage washed off clean and bright. There is not much loss from evaporation where sprinkling is done at night.

W. H. Macpherson of San Gabriel, an experienced overhead irrigator from whom the writer received several valuable pointers when planning the installation described, enumerates twenty advantages of the overhead system, which, with some additions, are as follows:

1. The ability to apply water when and where it is needed. It is a simple matter to "spot irrigate" certain portions of the grove, which on account of varying soil conditions may have special needs.
2. Economy. No loss of water through surface run-off or excessively deep percolation near the head ditch.
3. Reduction in loss from evaporation, when sprinkling is done at night.
4. Uniform distribution over 100 per cent of the root area. No dry spaces and dormant roots between large trees in the rows.
5. No washing of soil to lower ends of the rows and banking up above bud unions.
6. Keeps foliage and fruit clean of dust and dirt.

DEEP PLOWING UNNECESSARY

7. Eliminates necessity of deep plowing for the purpose of covering manure or cover-crops and for redistributing nitrates which accumulate at the surface under shallow irrigation.
8. Eliminates plow-sole on most soil types.
9. Saves the expense of leveling land, which results in removal of rich top soil from high places, leaving barren spots in grove.
10. Brings about a perfect downward distribution of nitrates and humus to the subsoil without carrying them beyond the reach of feeding roots.
11. Reduction in amount of fertilizer needed through much more efficient utilization of what is applied.
12. Intermittent sprinkling during hot spells in June and July reduces temperatures as much as 20 degrees, and by increasing humidity reduces June drop of young fruit.
13. Uniform germination and growth of cover-crop over entire area.

LITTLE ATTENTION NEEDED

14. Saves the expense and bother of furrowing out ditches.
15. Saves labor and time, constant attention being unnecessary.
16. May be of some value in reducing red spider and lessening injury from frosts.
17. Easier to watch than furrows, as the operation of the entire system may be observed from one point.
18. Elimination of washouts from gopher holes.
19. No valves or cement stands at ends of rows to accumulate bermuda grass, obstruct turning, or get run into and broken by the tractor.
20. It is a more natural system, resembling rain, therefore, produces a more normal and thrifty growth of trees.

In conclusion, it must be admitted it is a great deal more pleasant to irrigate with a monkey wrench than with a long handled shovel.

Fewer Farmers Produce Larger Crops

FARM labor became about 18 per cent more effective in crop production during the last decade, says the United States Department of Agriculture. Although the number of farm workers decreased over 4 per cent in that period, the mass of crop production increased about 13 per cent. The increased efficiency is attributed chiefly to the use of more and better machinery, time saved by the use of automobiles and to the fact that farm owners and their families are working harder or longer on account of farm labor shortage and high wages.

The average crop area per worker in 1920 was 29 acres, compared with 25 acres in 1910, an increase of nearly 17 per cent. The average size of farms has also increased, being 148 acres in 1920, compared with 138 in 1910. Grain and hay crops, which are especially machine produced, show a higher rate of increase in acreage from the average of 1907-13 to that of 1917-23 than other crops. The acreage of all crops increased 12 per cent, whereas that of grains and hay increased 14 per cent.

More and better machines are being used since 1910, the department says. Two-bottom sulky plows, for example have in many cases replaced walking plows, while two-row cultivators are being used instead of one-row cultivators. So long as land is more plentiful than labor, high production per worker is the economic objective, instead of high production per acre. Hence, farmers are displacing human labor with machinery.

The automobile, which made possible a saving in human time, was one of the great gifts to the farmer during the decade. In 1920 1,979,764 farms in the United States had 1,146,362 automobiles. These farms comprised nearly 31 per cent of all farms, but in some sections of the country the percentage of automobile-owning farms was as high as 58 per cent. Approximately 75 per cent of the use of automobiles on farms is for business purposes.

There has also been a substitution of animal power for human power during the decade, as indicated by the increased ratio of horses and mules to agricultural workers. In 1910 there were 1.94 horses and mules per agricultural worker, and in 1920 the average was 2.13, showing an increase of 11 per cent. The ratio of crop acreage to number of horses and mules has been increased, being 13.8 acres in 1920 as compared with 12.9 acres in 1910.

Motor trucks on farms at the time of the 1920 census were much less numerous than automobiles and slightly less than tractors. There were 139,169 motor trucks on 131,551 farms. Nearly five per cent of the farms in the Middle Atlantic States had motor trucks. These time savers have given the farmer in a large degree another pair of hands. They have not increased his leisure time, but have multiplied the effectiveness of his labor.

FARM CONDITIONS IMPROVING

Agricultural production has arrived at the best general balance since 1920, declares the United States Department of Agriculture. A note of caution is sounded, however, that the balance may not be upset by the tendency to overdo poultry, corn butter and hog production and cut down too much on wheat, beef cattle and horses.

EUCALYPTUS FUEL OIL

Texas experiments show that 50 gallons of good fuel oil can be made from a ton of eucalyptus leaves.

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Milk Goat Experience in Marin

Pleasures and Profits Derived From Keeping "The Poor Man's Cow"—Milk Rich, Easily Digested

By LEONORA C. WHITE

Sunnyside Ranch, Novato Valley

THE well-known but misunderstood milk goat is of greater value to a family than any other domestic animal requiring the same amount of care and attention. A goat can be kept for one-nineteenth the cost of maintaining a cow.

We have a two-year-old Saanen doe which gave birth to three kids that sold at six weeks old for three dollars each, to be eaten on Eastern Sunday. They are delicious when roasted whole and make an unusually fine dish when stuffed with celery and apples and seasoned with plenty of sage. Much lard is needed for cooking kids, but the result is a dish fit for epicures.

This doe, Mary White, give daily five quarts of rich, creamy milk. A second young doe had two kids, which were sold at the same time. From these two goats we get all the milk we need for family use, plenty of cream for coffee and other purposes, milk to drink and skimmed milk for cottage cheese, with from three and a half to four quarts soured and fed to young turkeys and chickens.

Goat's milk is richer and much superior in every way to cow's milk. Being easily digested, the former is an excellent food for a delicate baby or run-down individual, especially one who is growing old. Goat's milk has no odor when properly cared for and the taste cannot be distinguished from cow's milk. The does, however, must be kept separate from the buck.

It is a common error to suppose that goat's milk has no cream. It is so much whiter than the other milk that the cream is not readily seen. We get the thickest cream by letting the new milk stand for 24 hours, after which it is thick enough to whip. We have made seventeen ounces of very nice butter from a quart of cream. The delicate curls of sweet butter served with the continental breakfasts in Rome and Naples are made from goat's milk.

The milk is so rich we never think of drinking it before it has been skimmed, and then it is as rich as unskimmed cow's milk. Cake and other foods made with it have a delicacy and richness never obtained with cow's milk. On those rare occasions when we do not have a fresh goat the other milk used soon makes its inferiority noticeable.

Goats never have tuberculosis and seldom are sick. Their milk is quite scarce, retailing in Oakland for from 40 to 50 cents a quart. It keeps much longer than cow's milk. We do not use ice here in Novato Valley and the milk keeps perfectly for several days in the "cooler."

Our first venture with goats after coming to California was with old Demonio, an Irish raised, temperamental goat that was a splendid milker. If the "boss" went down town she would nearly bawl her head off, but if he also took the horse away one would think that goat was being tortured, so loud and incessant were her wails.

But when her companions returned she would exercise her ingenuity in devising mean little tricks to play on them. Her stall, with its manger filled with feed, was next to that of the horse, Mollie. Watching her chance, she would snatch a bit of hay from Mollie and continue pilfering until all of a sudden old Mollie would deliver a kick which would have sent Demonio off the place had it happened to hit her. This goat became very docile, however, after the boss doctored her for some injury. Next we bought a purebred Saanen buck, Hollywood Max, a fine, pedigreed youngster whom we still have. He occupies the hillside next to the vineyard all by himself and is a "perfect gentleman," coming to us when called. We had some young does running with him and to see him holding down a branch of oak for a "lady" to nibble the tender shoots, or standing at attention with one of the does daintily resting her foot on his back while she bit off leafage too high for her to reach in any other way was a lesson in chivalry.

Their daughter, Nannie Sue, is named for her grandmother, who gave five quarts of milk a day and is one of the finest goats in the valley. Nannie Sue maintains Grandma's reputation. She gave an excellent daily yield of milk for 14 months, or until within a month of kidding. Our youngest goat is little Sweetheart, whom the big man raised from a kid and who always wants to be first with her master in all things.

Goats are dainty, healthy and clean. They take their turns on an elevated milking stand, with feed box attached, the milker sitting down to his task. Their udders are washed and wiped with a clean towel while they themselves are rubbed with a soft brush. We milk them twice a day.

Sweetheart daintily sniffs at her master's buttons and whiskers, apparently enjoying the smell of his old pipe, and tries with all her blandishments to get him to pay attention to her only. Once she pushed in on the milking stand beside Mary White, shoved her head over Mary's the latter has no horns—and stayed there until Mary was milked and it was her turn.

While goats do not require much feed, they must have a variety. Our milk stock runs in an old orchard, where there is marshmallow, or cheeseweed, alfilaree, foxtail, wild mustard, dog fennel and grasses of various kinds. They each are fed, night and morning, a pint of rolled barley.

Particular care must be taken that their drinking vessels are kept scrupulously clean and a lump of rock salt left near by. The more water a doe drinks the greater her milk supply. Goats won't drink water when they smell the scent left by a stranger's hands on the rim of the bucket.

They don't require much in the way of shelter so long as the building is dry, as they cannot endure getting wet. In their native habitat they run on rocky ground, therefore, when they are kept on grassy ground their hoofs sometimes need paring. After Nannie Sue had her hoofs manicured little Sweetheart, whose feet did not need treatment, came running up and took her place on the stand, looking inquiringly up at her master as much as to ask, "Aren't you going to fix me, too?"

Does' udders are so large that we have to grease them with olive oil to prevent their being chafed by rubbing the legs and scratched by the grasses through which they run.

Goats are intelligent lovable and teachable, but full of playful pranks, which can be corrected by a word with the voice raised. Each one comes from their yard into the barn, snatching a bit of corn by the way, and goes to her particular stall, leaving it to mount the milking stand at the word of the master. Sweetheart took a notion to kick when being milked. The Big Man first put one of her hind legs in his pocket, but she kicked with the other. He knew it never would do to let such a bad habit continue, therefore, gave her a spanking to her great surprise. Two treatments only were needed to break up the kicking habit.

Goats are the most observing of all animals. Let a stranger, man or beast, come around the place and they stop to look him over and closely watch him until he leaves. They take note of one's clothes. I had a dress trimmed with flowered cretonne which in some way "got their goat." They would make a break for the barn whenever they saw their mistress wearing that flowered gown.

Goats protect their young from roving dogs and will notify you when they want water, which they like freshly drawn, or desire something to eat. They come to the fence and look up into the apricot trees at the succulent shoots of which they are very fond. Shrubs, flowers and tree trimmings also are greatly relished and the first click of the pruning shears brings them to the fence begging.

These little animals are very jealous. Poor Mary White had no peace for a long time after we got her and even now she is barely tolerated. She was given a place to herself but got lonesome and bawled for company. She was taken outside the yard to be ... ried, but Nannie Sue pushed through the fence and quickly bit her ... she squealed.

The milk question certainly ... solved when one can keep these ... little animals, "the poor man's cow." We have had the great ... of helping forward a ... lives ... quite a few babies which were ... naturally delicate or ... a serious illness.

Many physicians claim that goat's milk more nearly approaches ... of the human mother than any other. Its richness is shown by the fact ... in every instance where this milk was used for a baby the ... diluted from half to ... the ...

Its effects upon ... whose mate had died and ... parents feared they ... completely rejuvenated after ... goat's milk a few weeks. ... excellent ... for the ... In fact, our experience on Sunnyside Ranch indicates that it is the ... cheapest, safest and most ... milk ... had.

Meat Shortage Danger

EVERY now and then some statistician comes forward with a statement that the world's supply of beef or mutton or wheat or something else either is far in excess of the demand, or under it. Either a feast or a famine in sight—right away!

As long as I can remember agricultural college professors and other students of world agricultural problems have been telling farmers and prospective farm school scholars that "Consumption has overtaken production," and "The last west is gone, no more cheap land, no more cheap food," as an inducement to engage in the farming business.

But the prophesied shortage never arrives.

For example, there is never any shortage of beef ready to kill in this part of the country. The butchers always have a fat animal here; two or three there and maybe a dozen somewhere else that they can go out and get whenever they want them.

I doubt if any statistician has any record of these animals although he figures all the population of our neighborhood from the Government records.

But these fat heifers and old cows and veal calves and some dairy bred steers and a few others which we have as steady diet the year round do not get into the records at all, they do not get near the stockyards—they are considered too triflin' for the assessor to bother with.

During the past few years many big range cattle outfits have gone out of business. Harry Petrie of Reno, Nevada—an authority on range cattle affairs—says that with taxes and the price of land and operating costs as they now are there is no hope for the big outfit.

Some prophets have predicted a great shortage of beef because of the passing of the big outfits. But instead of decreasing, the supply of beef is increasing—regardless of the fact that it can be conclusively shown that it costs more to make a steer than he will bring.

Why? Because the small grower on farms and ranges is producing more in the aggregate than the big outfits did in the mass.

The small producer who does his own work and has no overhead—what he makes is what he gets, be it much or little. The bulk of the world's supply of food will probably continue to come from this source, as it always has.—W. S. GUILFORD.

Students Assist Farmers

RARELY a day passes that the teachers of horticulture or animal husbandry in the Gridley high school are not consulted by the farmers of the community. If an important piece of work is to be done these instructors with their students go to the farms and do it.

Such problems as pest control, poultry care and feeding, irrigation problems, dairy problems and soil moisture determination are taken up and handled to the satisfaction of the farmers. —THOMAS J. ROESMAN.

WRITE TO MRS. LEITCH

You may win a prize for your letter concerning "THE COUNTRYWOMAN'S CLUB." First award $10, second $5, third $3, fourth $2. Tell in not more than 300 words what topics you think should be discussed and what this new feature should be and represent. Address Flavia Gaines Leitch, executive secretary the Countrywoman's Club, ORCHARD and FARM, Examiner Building, Los Angeles. Contest closes July 17.

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Your Garden of Flowers

By HELEN TEMPLE

CHRYSANTHEMUMS ARE EASY—"If all flowers were as easily started and grown as chrysanthemums gardening would be a snap," declared one of our leading nurserymen recently, as he inspected the chrysanthemums in my garden of flowers. He spoke the truth. These flowers are the only ones that had not demanded constant attention. I planted them in March and forgot them until May, when I decided that growing had become their main object in life, therefore, cut them back and thinned out the suckers. During the period between March and May I irrigated them twice a month, cultivating as soon as possible afterwards with a wheel cultivator.

HELEN TEMPLE

In May I selected a dozen of the best suckers and chrysanthemum tops and set them out. They are growing rapidly, seemingly trying to catch up with the older plants. The tops will bloom in late fall. I have raised wonderful flowers from tops or tips of strong plants started anywhere from February until June. It is necessary to irrigate more frequently when starting cuttings and plants as late as this and in the interior shade must be provided until the root system has become established.

My best flowers have come from cuttings from the tops of old chrysanthemums. Dividing the roots or pulling suckers with a bit of the root established is perhaps a little surer, but the flowers from these will not be quite as good as these from rooted tips. Specimen blooms usually are grown in this manner.

ROOTING THE CUTTINGS—I root chrysanthemum cuttings outdoors in the location where they are to bloom. This method is much easier than the cutting-box method, which requires extra transplanting work in a few weeks.

Take cuttings eight inches long from the shoots of the old chrysanthemum. Strip all leaves from the cuttings, except those at the top, then place in water for an hour or two, or over night.

Make a trench eight inches deep and fill it with water, allowing it to become thoroughly soaked, but keeping the earth on one side of the trench dry. Set the cuttings about eight inches apart and six inches deep, allowing just the top of the cutting above ground.

Fill up the trench around the cuttings with the muddy earth, then run the water into the trench for a few minutes to firm the soil around them. After the surplus water has disappeared into the soil, finish filling the trench up with the dry soil. The muddy soil will have settled about the cuttings, leaving an inch or more to be filled with the dry.

This method demands minimum of water to root the cuttings, which will begin to grow within a fortnight. In the semi-tropical or interior regions of California the cuttings must be shaded for two weeks or more at this time.

CUTTING BACK THE PLANTS—This department is designed for the flower loving readers of ORCHARD and FARM, not for the experts who are growing exhibition blooms. However I want our readers to enjoy a few exhibition blooms in their gardens, therefore, must discuss disbranching, cutting back and disbudding.

When a chrysanthemum has grown about ten inches high, pinch off the top. Soon you will notice several little branches shooting out from the top. When these have grown five or six inches break off all but the two at the [illegible]. New branches are broken off repeatedly until the middle of July when [illegible] should keep only four or five of the best ones.

[illegible] July chrysanthemums are less than two feet tall if they have been cut back and disbranched at proper intervals. The plants now are ready to [illegible] flowers. But disbudding now [illegible]. The branches keep throwing [illegible] and try to "bush up" [illegible] off, however, as [illegible] branches. The top [illegible] will produce the bloom. [illegible] are large enough to [illegible] strength of these [illegible] people save the [illegible] but I save the [illegible] this one. This [illegible] a little later but I [illegible] crown

bud and of better texture. New buds must be picked off repeatedly. I must repeat this warning.

I can not advise the busy housewife to grow a great quantity of specimen or exhibition blooms, as it is far too much work to produce them. Select a few plants and devote your time to them, but let the remainder of your chrysanthemums just grow, after the last cutting-back in July.

GROWING SPECIMEN BLOOMS—There is a great deal more to be said about specimen blooms: Feeding, protection from wind and dust and much more. The feeding should be with liquid manure, either the barnyard kind or poultry droppings. Artificial fertilizer, such as nitrate of soda or sulphate of ammonia, also is valuable. After the flower buds appear, discontinue at once feeding, but continue liberal watering.

I do not stake early chryanthemums, but furnish later blooming plants with support, using laths and tying the branches in two or three places. This prevents wind breaking and keeps the stems straight.

SAVE THE OLD PLANTS—Old plants should be saved until spring, first cutting them back within three inches of the ground. In the spring they will send up new growth, which can be used for new plants, the old roots being dug up and thrown away.

In spite of the foregoing, chrysanthemums are one of our most easily grown flowers. They are practically disease proof and will produce beautiful blooms, even though we neglect to disbud them.

SOME NEW VARIETIES—We Californians should have a variety of chrysanthemums that are not hardy back East, where the last of September sees chrysanthemum plants of the large flowering sorts indoors. Among these we find beautiful new varieties, such as Pacific Supreme, a beautiful early pink; Major Bonnafon, a soft, yellow incurved blossom; Golden Glow, an immense, clear yellow; Harvard, a lovely crimson; Unaka, a popular new lavender pink blooming quite early; White Bonnafon and White Coombes, fine, new white varieties.

STARTING CHRYSANTHEMUMS—Seed seldom is used to start new chrysanthemums, but new varieties come from seed. You may discover a new variety and become famous—who knows? The seed is sown in a fine mixture of sand and leaf mold, keeping the soil moist at all times. The seed is sometimes a little slow in germination, as is all perennial seed.

You may buy seed of the Japanese—long wavy, twisted petals—the Chinese big incurved—or the cute little Pompons. These are doubles, but you must not expect all of them to be doubles when they bloom. You will find about half of them singles. Your smallest, most delicate plants usually produce the real, double strains and among your seedlings you may perhaps find a new variety.

Disentangling Grapes

AT THE suggestion of Prof. F. T. Bioletti I have put in part of an afternoon disentangling bunches of grapes that had grown together or across canes or were displaced in some other way. Prof. Bioletti states that for several years he has believed this work would be profitable, but has never seen it tried, except in a small way on some vines by himself.

In early summer the small bunches can be loosened and made to hang free quite easily. After they are grown and ripe they cannot be separated without great injury and loss. The question is, how much of this injury and loss can be saved and what will the work cost?

With Emperor grapes worth $40 to $50 per ton a man would earn big wages by going through his vineyard and getting each branch to hang free, but the work had better be done quite early in the season. Even in June the clusters are so large as to be difficult to untangle.—TULARE FARMER.

Mr. L. Minchin, proprietor of the Reliable Pullet Farm, Petaluma, Cal., writes ORCHARD and FARM: "We regret to have to ask you to discontinue our ad for a while. ORCHARD and FARM has given us EXCEEDINGLY good results but we have about sold out our spring pullets and will have none for sale for several months. We are not trying to save money; we are trying to save the time. It has been quite a task of late to keep up our correspondence.

"You will hear from us again in due time."

Sulphuring Red Spiders

W. S. COYLE, Bayles (Shasta County), wants to know why hop vine leaves get shiny and covered with something that looks like meal.

Without seeing the vines I would not be certain as to what is wrong with them. From your description it looks as though red spider might be present.

In cases where the leaves are shiny, look for aphis, as shiny foliage may be due to honey dew excreted by plant lice.

Red spiders are controlled by means of a sulphur preparation, a good form being atomic sulphur, used at the strength of 10 pounds to 100 gallons of water. Aphis are controlled by means of a nicotine sulphate spray, the common form being known as "Black-leaf-40." Use one part to a thousand parts of water and about 4 pounds of soap to 100 gallons—preferably whale oil soap—to make the spray more penetrating.—GEO. P. WELDON.

GROWING ONIONS IN SPAIN

During the past year prices and demand in America were good; returns of $2000 per acre were obtained by some growers. Consequently the "onion planting fever" is prevalent and virulent this season. In December English prices were low; quoted at about $2.60 per case of about 160 pounds in Manchester and Liverpool. One is reminded of the Delta onion growers of California with one year of good prices and then one or more of poor to very poor prices. It is apparently a game of many ups and downs the world over.

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THROUGHOUT this summer and fall we will have hatching every Tuesday. R. I. Reds and Barred Rocks from strong and vigorous stock. Write the SANTA CLARA VALLEY HATCHERY, 1049 Lincoln av., San Jose, Cal.

ACCREDITED HATCHERY BABY CHIX. High egg records and strong, vigorous stock. Prices July and August, $14 per 100. Safe arrival guaranteed. THE PIONEER HATCHERY, 476 Sixth St., Petaluma, Calif.

BABY CHICKS, all kinds hatching each Monday. Ducklings, turkeys, hatching eggs. Pullets, pigeons, rabbits. FANCIERS' EXCHANGE, 640 S. Main St., Los Angeles.

WHITE LEGHORN PULLETS 4 months old from Bolfing's Trapnested Proven Producers Commencing to lay. $1.75 each. Mrs. H. L. GILLESPIE, Tres Pinos, Calif.

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FARM LAND FOR SALE

OUR BACK-TO-LAND PLAN—We offer ambitious farmers a real opportunity to own a farm on very easy terms. Sutter County land; deep, rich, tried soil; complete irrigation with cheap water; thorough drainage; rail, water and highway transportation. Write owners. SUTTER BASIN COMPANY, California Fruit Bldg. Sacramento, Calif.

COMPELLED TO SELL my Modoc County, California, farm, 160 acres level productive land, all cultivated House, barn, fenced. Full price, $2500 cash. Owner, 210 Main St., Huntington Beach, Calif.

NO COMMISSION. Sell your farm direct to buyer. We put you in touch with thousands of buyers through our chain office service. Owner only pays small listing fee for expenses. Booklets of farms for sale free OWNERS' NATIONAL LISTING BUREAU INC., 443-444 Roberts Bldg., Los Angeles, Calif.

MUST HAVE CASH—Biggest bargain in Yakima Valley 40-acre improved irrigated alfalfa ranch. Cash equity $3500, worth $10,000 Near Prosser, Wash. Owner, 767 Main St., Riverside, Calif.

POULTRY and BERRY FARMING in sunny California in the famous Charles Weeks intensive poultry colony will make you a comfortable living on a very little land. Near Los Angeles. Write for literature. CHARLES WEEKS, Owensmouth, California.

MUST HAVE CASH—Biggest bargain in California. 90 acres Humboldt County. Good home, well improved; full price, $2500. Owner, 767 Main St., Riverside, Calif.

FARMS WANTED

CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb

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BEAUTIFUL Xmas Berry Plants. The Toyon, 4 years old, will berry next season. Grow your own. Get one while they last. Supply limited. $2.50 each. Ready for delivery now. Toyon Gardens, Bay Point Cal.

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EARN $110 to $250 monthly, expenses paid as Railway Traffic Inspector. Position guaranteed after completion of 3 months' home study course or money refunded. Excellent opportunities. Write for free booklet G 91. Stand. Business Training Inst., Buffalo, N. Y

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HOMESPUN TOBACCO—Chewing, 5 lbs., $1.75, 10, $3; smoking, 5 lbs., $1.25; 10, $2; pipe and recipe free, pay when received. CO-OPERATIVE FARMERS, Paducah, Ky

PATENT ATTORNEYS

HAZARD & MILLER Herman Miller, formerly eight years member examining corps, U. S. Patent Office. Hazard's Book on Patents free. CENTRAL BLDG., Sixth and Main, Los Angeles, Calif

MISCELLANEOUS

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MAKE BIG MONEY—Full particulars for ten cents. PORTER MFG. CO., 225 S. Mt. Vernon Ave., San Bernardino, Cal.

Chamber Aids Agriculturists

How a Ventura County Commercial Organization Has Improved Relationship With Farmers

(Editor's Note This is the third of a series of brief articles on co-operation between city and country. The fourth will be published in an early issue.)

OXNARD, Ventura County, has a future; on this point all the boosters of that favored district are agreed.

But the realization that this future depends even more upon agriculture than upon industry has wrought a change of heart and thought among the local business men. To A. M. Robertson, secretary of the Oxnard Chamber of Commerce, is given much of the credit for bringing about a better feeling between the townspeople and the farmers.

"Our district is on the eve of a new era of development," Robertson enthusiastically tells his cohorts. "The farmers of this section are awakening to the possibilities of diversified and intensified farms, which, with the added advantage of an equable climate, will increase the prosperity of this section many, many times within the next five years."

The Oxnard Chamber of Commerce, a year ago, realizing that there was not the proper harmony and co-operation between the farmer and the city dweller, undertook a series of what are known as "Farmers' and Merchants' Dinners." These dinners were inaugurated by a complimentary dinner by the business men to the farmers, and every one present was encouraged to speak his mind, or, in other words, to get "off his chest" any grievance that he felt he might have against his fellow man.

The first few meetings waxed warm, wherein the farmers accused the business men of certain things, which, later, developed as not being serious. However, these meetings have brought the farmer and the business man close together and have inspired a confidence which is assisting very greatly in the development of this district.

As a result of these meetings and the various discussions that have ensued, diversification has been very largely brought about. The business man has manifested a deep interest in the problems of the farmer and no opportunity has been overlooked to assist the farmer in overcoming his difficulties and problems and encouragement has been given to various new agricultural industries which would give a profit to the farmer and at the same time, to the entire community.

The membership in the Oxnard Chamber of Commerce is very largely made up of farmers who take a more or less active interest in community affairs.

"We have a very efficient agricultural committee, composed of real dirt farmers who have outlined a program of development which, when carried out, will add much to the prosperity of this district and its future growth," concludes Secretary Robertson. "The chairman of this committee is a member of the General Agricultural Committee of the Los Angeles Chamber of Commerce, which at this time is encouraging agriculture to the fullest extent.

"Our local committee is interested also in seeing that the new investor is given legitimate and honest advice on soil conditions, to the extent that the unscrupulous real estate dealer will not fleece him of his hard-earned money, and to see that he is sold the property which will make him a substantial, satisfied citizen of this district."

How Crops Are Reported for Uncle Sam

THERE are over 300,000 voluntary crop reporters connected with the U. S. Department of Agriculture; a staff of 60 State statisticians and a Washington organization composed of eight to ten members on the crop board and a staff of 120 statistical clerks.

Approximately 50,000 separate and distinct estimates of various kinds—including condition figures, yields, acreages, prices, stocks, and the like—are issued annually for individual States and for the United States. More than 9,000,000 schedules a year are used by the field organization in reporting on crop and livestock conditions.

The reports from the State statisticians are kept in a safe to which only the Secretary of Agriculture has the key, and are delivered unopened to the Board behind locked doors in a room in which telephones have been disconnected, and other safeguards erected to prevent communication outside the Board room.

The dates and hour set for release of the reports are fixed by the Secretary of Agriculture in December for the following year. A few minutes before release time the reports are carried to a room next the Board room, where telegraphers for newspapers and exchanges are assembled at telegraph and telephone instruments to flash the Board's figures over the United States. As the clock strikes a signal is given and the press and other representatives dispatch the news.

The most outstanding development in crop estimating has been the field count method of estimating changes in acreage, whereby the number of fields in each kind of crop along selected routes in a State is counted, the same routes being covered from year to year, a sufficient distance being covered to be typical of the entire State. A crop meter has recently been devised for attachment to the speedometer gearing of an automobile, that measures the linear distance of fields along the route.

This year an experiment is being made in aeroplane photography of crops. Photographs will be made of selected areas over a route, and the area of fields in various crops measured by instrument. It has been found that the various kinds of crops can be distinguished in the photographs at considerable heights.

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Practical POULTRY *Pointers*

By W. J. DRYDEN

SALT POISONS CHICKENS—Many chicken raisers report having lost hens by salt poisoning. A hen requires only a quarter of a pound of salt a year and, since many mashes contain salt, it very seldom is necessary to add more.

In case salt is fed it may be dissolved in drinking water or milk or sprinkled in feed. No lumps should be given, as chickens are apt to eat too much and die of salt poisoning.

EXPERT ADVICE THE BEST—Not long ago I visited a California poultry plant being started by two men who were new at the game. They were operating according to the directions of another California poultryman who boasts of the fact that he has the dirtiest plant in the large poultry center where he is located.

Following his directions, for which they have paid him, they are spending more for their home-mixed ration than they would have to pay for any of the reliable commercial feeds and they do not know the digestibility of their mixture.

These men help support by taxes a large and efficient staff of poultry experts at Davis. In addition there are associations and farm papers which give reliable advice without cost

It will be surprising if these men meet with the success they would have achieved had they gone to the poultry experts at Davis instead of to one who by his very methods encourages diseases, poor production, weak breeding stock and helps maintain the 50 per cent of poultry failures.

BREEDING FROM SICK HENS—Many poultrymen believe that after a hen has been sick she no longer is of any value as a breeder. It has not been proven that a spell of illness has any marked effect upon a hen's chicks, providing she has regained her strength before hatching season. Even if she has not done this there is a question concerning the effect of sickness upon the vitality of chicks.

If it were possible to dispose of all sick hens, which usually is not the case, it is probable that better results would be secured.

ANOTHER LAYING CONTEST—Oregon poultrymen are working hard for an egg-laying contest and, according to present plans California breeders will have another contest in which to enter their winning hens. The contest probably will be held at Corvallis under the supervision of the Oregon Agricultural College.

LIME HAS LITTLE VALUE—Slacked lime has been proved to have no value as a disinfectant. Water or fresh, clean soil has as much value as lime for the various purposes the latter has been used for by poultrymen.

Strange Discovery Wipes Out Flies

Dust of An Asiatic Flower Fanned in Air Is Quick Death to All Insect Pests. Odorless and Not a Poison.

It is now easy to rid the home, [illegible] live stock or shrubbery of flies and [illegible] noxious and disease carrying insect pests. The flower dust of a remarkable plant, imported from the high, dry altitudes of Asia, when fanned in the air, does it, by [illegible] the respiratory [illegible] glands, producing sure suffocation and death. It is odorless, and absolutely harmless to humans, stock and [illegible] neither spots [illegible]

The only safe, sanitary method of killing all insect pests. Simply fan it in the air [illegible] animals. A boon to housewives, farmers, and storekeepers; especially valuable to dairymen, it enables the herd to eat and sleep in peace. [illegible] records of increased milk yields of 5 to 20 per cent. Protects grain in storage from weevil and all insects.

Sent Now On Free Trial.

Send no money. Write today a card with [illegible] ing. [illegible] Missouri, and you [illegible] $1.00 cans of [illegible] not [illegible]

HOME FARM HAPPENINGS

By ONE OF US

EFFECTIVE SQUIRREL POISONING—There are plenty of squirrels this spring. The lack of floods in the river bottom for a couple of years has allowed these pests to multiply rapidly. Ed Ross has had fine success poisoning squirrels during the past couple of weeks. Vegetation has dried up and the squirrels are eager for food. They eat the poisoned barley very readily and apparently every grain of barley gets a squirrel.

W. S. GUILFORD

The "dope" used is the regulation strychnine - barley poison, furnished through the horticultural commissioner's office.

There seem to be plenty of squirrels everywhere in the Sacramento Valley this season, all the way from Antioch to Redding. Squirrels are very fond of working in an orchard, the moist soil after irrigation being easy to dig in, and tree roots a favorite food.

GRAIN AFTER RICE—There are many excellent crops of barley and wheat on old rice land in the Sacramento Valley this season.

This is true particularly where the lands are rather low and had a "carry over" of moisture from previous years' irrigation.

Some of these grain fields, where the old rice checks had not been entirely done away with and where the land was pretty well leveled, were irrigated.

When the irrigation was done early very good results were obtained. The very late irrigation made good feed of grain that would otherwise have produced nothing.

There is apparently no indication that the rice crop has decreased the ability of the land to produce grain; there is much evidence to show that the soil has been benefited by the growing of rice.

YOUNG LAMB—A DELICACY — "You sell what you can—and what you can't sell you can"—this is an old stock yarn that is told of the farmer fruit grower.

The choicest things grown on the farm were to be sold—as a matter of course and what was left and unsalable was plenty good enough for the farmer and his family.

This holds true to a greater or less extent in all farming districts the world over today. But at HOME FARM we fool 'em once in a while.

In our registered flock there occasionally comes a lamb with black wool; this is true of the best flocks not only in this country, but in Great Britain. Why it is, no one knows. (A good job for the students of animal breeding and heredity.)

No one ever registers them, although they are purebred. So whenever we find a black lamb John always says: "There's another lamb feast."

When they weigh about 60 pounds and are the primest kind of milk lamb, we enjoy the same kind of food the epicures in the big cities demand—with this exception—that ours has had less handling and transportation and is that much better.

CALIFORNIA IS HONORED—In the HOME FARM office we have a framed photograph of the oil painting of Prof. Gordon H. True, head of the Animal Husbandry Division of the College of Agriculture of the University of California.

This painting is to be hung in the Saddle and Sirloin Club gallery at the International Livestock Show next December. It is a great honor to Professor True and to California.

The hanging of a picture of an individual in this collection means that some signal service to livestock and agriculture must have been performed. No greater honor can be bestowed upon a man in the livestock industry.

California has received more good advertising as a livestock State by the winnings of the stock from the University Farm at the great International Livestock Show than could have been secured in any other way.

Its most favorable publicity could not have been bought (which would have been impossible) it would have cost a very large sum.

We are mighty proud of Professor True and propose to have his picture on our wall.

Oranges and Onions—A Trip to Valencia

(Continued From Page Two)

land, as follows: Large size (300 oranges per half case), 14-15 shillings; medium (360 oranges per half case), 9-10 shillings; small (504 oranges per half case), 8½ to 9¼ shillings. At 23 American cents per shilling these prices are $3.22 to $3.45; $2.07 to $2.20; and $1.96 to $2.13 per half case (roughly per California box). This price is delivered in the market in England. The prices are not princely.

The grower sells his fruit in most c[illegible] a non grower packer and ship[illegible] well. The fruit may be bought "a ojo" [illegible] a certain price per arroba (27.5 lbs.) picked in the orchard or delivered at packing house.

The price in the orchard this season, I was told by a packer, varied from 1.5 to 2 pesetas (21 cents to 28 cents American) per arroba or about 76 cents to $1.02 per 100 pounds. The packer usually prefers to buy "a ojo" as he can then harvest as he requires the fruit and can avoid unpleasant "gluts" caused by too zealous deliveries by anxious growers.

The consul estimates the average yields for full bearing groves at about ten tons per acre. This would return the grower at above prices about $152 to $204 per acre—again not princely returns judged by our California standards. Of course, as elsewhere, the best growers obtain yields in excess of ten tons per acre.

Bearing acreage, according to a packer, friend who piloted me through groves and packing houses, is valued at $700 to $1000 per acre. Undoubtedly some day some Valenciano will visit Santa Ana or Riverside and then these figures will be raised, because Valencia has the soil, the fruit and the climate—even has our own Golden State.

NON-ACID VARIETY

The writer is not a marketing expert and has little faith in his own judgment in such matters; nevertheless, he believes Valencia is suffering from too many varieties; few present day housewives are going to remember the nine "leading" varieties of Valencia's oranges, and their seasons. Three varieties should be ample even for the English market. As it is, the grower often groups the nine varieties as Common (Corriente), Blood (Saugre), and Mandarin—this in spite of the fact that the "Common" class may include five or six varieties, some sour, some very sweet. The "big nine" are: (1) Fine or Sweet Peel; (2) Torregrassa (Big Tower); (3) Cadena (Rough Peel); (4) Papeles (Paper Peel); (5) Viciedos; (6) Royal; (7) Common; (8) Beruas, and (9) Blood. Many other varieties can be found—even experimental plantings of Washington Navel.

One variety is almost devoid of acid—a "dead sweet" fruit of excellent flavor and good size. Its name is "Corriente," that is, "Common." Americans in Spain, including our own family, are very fond of it. Another variety of similar size and appearance was given to us as the "Common" orange. Here is a good job for some ambitious systematic citriculturist.

Perhaps this oversweet fruit would prove profitable in California, even in early November. We obtained it in Madrid, and at that time it was "dead sweet." It probably would pass the 8.1 standard, even on October 1 and would permit even "South of Tehachapi" to "horn in" on Oroville and Porterville's Thanksgiving trade (Dr. Chase, please note). It is really an excellent fruit.

Compact soil is preferred to sandy soil, although transportation facilities and availability of water for irrigation often determine the choice of site for the grove.

Seeds of the Borde ("bastard" or bitter orange) are planted for root stocks and the seedlings are grafted when about 18 inches high. Trees begin to bear considerable crops at 5 to 6 years and reach full bearing at 10 to 12 years. One grower placed maximum bearing at 15 years and the profitable life of the tree at above 60 years. Many trees of this age are still in profitable bearing, he states.

FERTILIZATION IS IMPORTANT

The trees are kept well cut back and a Californian has the impression of a grove of very low trees, almost bush-like in some cases. The trees are broad and with centers open.

Irrigation is frequent during the summer, one authority placing the frequency at every 8 to 10 days for sandy soils and 28 to 30 days for very heavy soils; other soils at intermediate intervals. In an orchard visited near Valencia a circular hole was dug around each tree to receive the water. The amount of water per irrigation is stated to be 150 to 600 cubic meters per hectare. My conversion calculations make these figures approximately 1½ to 6 acre inches per irrigation.

A prominent irrigation engineer informed me that irrigation is withheld during setting of the fruit and thereafter until the fruit has attained about ¾ inch diameter this in order to avoid dropping of the young fruit. This practice does not agree with one California theory for cause of June drop, does it? "Who is right?"

Fertilizing is a common practice. One formula calls for ammonium sulfate, 550 pounds; calcium superphosphate (17% P_2O_5), 160 pounds; potassium sulfate, 200 pounds per acre. Ferrous sulfate at rate of 30-40 pounds per acre is sometimes used.

According to Consul Harmden, purple scale, mealy bug and black scale are abundant. Fumigation with hydrocyanic acid gas (from cyanide and sulfuric acid) and a spray are used for control. Professor H. J. Quayle of the Riverside Experiment Station recently has conducted experiments on improved fumigation methods at Valencia in co operation with representatives of the Spanish agricultural authorities. This work should lead to needed improvement in present fumigation practice in this district.

ONIONS VALUABLE CROP

The fruit is picked from the ground or from low ladders into esparto grass baskets; it is weighed as picked and then heaped on the ground until hauled to the packing house. Here it is again heaped on straw on the floor. Women sit about the heap and sort the fruit into baskets according to the sizes previously mentioned in this article. Size grading is done by the eye—not by a mechanical device.

The baskets of fruit are taken to the packing platform. Here girls wrap the fruit and pack it—not with the "California bulge," but flat. The box (case or half case) is nailed and then tied with braided esparto grass rope. The rope aids in handling the cases by crane at the dock. Mandarins (tangerines, probably) are often packed in flat boxes one layer deep for a fancy trade.

The cased fruit is transported by flat car or by horse or "bull car," depending on the distance, to the quay in Valencia. Here the cases and half cases are stacked under a long shed. Each shipper rents space suited to his needs. By small hand cranes the fruit is loaded on barges to be towed by tug to the waiting freight steamers.

Onions are second to oranges in export value for Valencia. The normal acreage is 15,000 to 16,000, and the normal quantity exported about 6,000,000 bushels. The average crop is about 535 bushels per acre, but with ample irrigation and fertilization yields of 1850 bushels per acre have been attained.

The farms are small—½ acre to 3 acres each—and onion raising is often a side issue. Cash expenditure for labor is slight, because the farmer and his family do most of the work. The principal costs are for water and fertilizer. The onions are sold in the field to the packer.

The onions are grown from seed, not from sets. The principal variety, the "Grano," is planted broadcast in December and January and the "Babosa" in August in finely pulverized soil, previously fertilized. Water is applied and when the plants are 8 to 10 inches high they are transplanted (normally in April and December, respectively, for the above varieties).

DESCRIBES CULTURAL METHODS

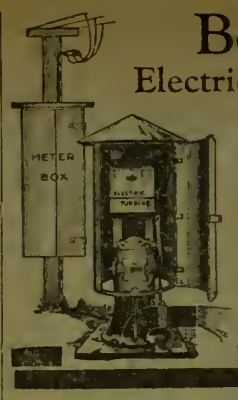
Onions are voracious feeders and deplete the soil; therefore, rotation is customary as is also the plowing under of a green manure crop before planting, vetch being commonly used for this purpose. Fertilizer—usually ammonium sulfate, 45 parts; lime, 40 parts and potassium chloride 15 parts—is used and 450 to 700 pounds of the mixture per acre is applied before transplanting. Barnyard manure is avoided because it is thought to cause disease. Superphosphate is also frequently used.

Irrigation is given at transplanting and again a few days later. Then irrigation is scanty for a time to force downward root growth. Shallow cultivation and frequent weedings are practiced. The final irrigation is applied immediately before harvest.

Long, low checks about nine feet wide are used for irrigation. Fertilizer may be broadcast and soaked into the soil by irrigation to stimulate growth.

The "Grano" variety is ready for harvest about August 1. The tops are leveled several days before harvest to admit sun's rays to the bulbs and to stop sap flow. The bulbs are allowed to dry in the field several days after removal of all soil and organic matter.

The "Babosa" onion is harvested in May. It is a poor keeper and must be shipped at once. The "Grano" is the real Valencia onion as Americans and British know it. It is of bright golden color, has a very mild flavor, and is oval in shape. It has remarkable keeping qualities. It is stored in "cribs" similar to San Joaquin Delta corn cribs, and may be held until mid-winter or early spring.



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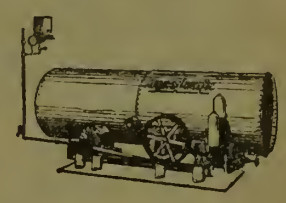

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Harriman Loses Record Holstein Herd

THE great Los Angeles County farm herd of 314 registered and grade Holsteins was destroyed June 19, because of foot and mouth infection. Sixty days previously infection appeared in a herd within 1000 feet of the county barns and since that time 4000 cattle have been destroyed within a radius of two miles. It looked for a while as though the great County Farm herd might be saved, but infection finally appeared among the calves and the herd was lost.

Starting with grade Holsteins, but constantly using purebred bulls, the herd became the leading herd of the United States in cow testing association production. Later the foundation of purebreds was laid and a splendid work already has been accomplished with them, including the development of the highest record butter producer in the West as well as many other high producers.

Two herd bulls of outstanding quality were lost with the herd. The oldest of these was King Segis De Kol Mead, son of the famous foundation cow, De Kol of Valley Mead, and the grand champion bull, King Segis Pontiac Emperor. The other was King Korndyke Pontiac Mead, son of De Kol of Valley Mead 2d and the leading American sire, King Korndyke Pontiac 20th. This bull was widely regarded as one of the greatest sons of his famous sire and his value was well up among the leading young bulls of the breed.

It is significant to note that in the loss of these two bulls and the previous loss of Sir Aggie De Kol Mead by Fred Hartsook, all three of the great cows in the direct Valley Mead line—De Kol of Valley Mead, De Kol of Valley Mead 2d and Miss Valley Mead De Kol Walker—a tremendous loss to the breed was suffered.

The loss of this great herd is without question the greatest single herd loss yet sustained in California with one exception. It represented one of the foremost constructive breeding achievements in California, the credit for which is due entirely to William R. Harriman, superintendent Los Angeles County Farm. In his official position Harriman has for years been called upon to manage one of California's important public institutions, yet in the development of the Holstein herd—only one of the great details of the big plant—Harriman, although with limited funds to purchase foundation stock, secured the right kind of cattle by intelligent selection and developed them in a manner that would reflect credit upon any breeder who had nothing to look after but the operation of his herd.

Both Mr. and Mrs. Harriman are recognized as keen students of Holstein pedigrees, with a rare enthusiasm for their favorite breed. Probably no actual owner could more accurately regret the loss of his herd than does Harriman feel the loss of this public herd, after the years he has spent in building it up and the heroic fight he made for months to save it.

Friendly Philosophy

(Continued From Page Four)

that during the nine-year period from 1915 to 1924, Ayrshire, Jersey, Guernsey and Holstein cows showed an increase in butterfat production ranging from 8 to 11 per cent and in milk production ranging from 9.65 to 11.38 per cent, over the average for all records made previous to 1915.

This improvement may be due in part to better feeding and testing methods, but the major credit undoubtedly must go to the breeders who supplied the high-record blood lines.

WHAT DETERMINES VALUATION?—The breeder of the greatest animals naturally demand and receive highest prices for their stock, just as the master craftsman is better paid for his labor than the less efficient worker.

And they are entitled to higher prices, not only because they have better animals, but also because they are performing a service to the entire livestock industry and the nation.

Already pressure is being brought to bear upon Uncle Sam to recognize these facts. And in view of his tireless efforts for many years, through the United States Department of Agriculture and the State agricultural colleges, to encourage the breeding of better animals, it seems as though Secretary Wallace cannot fail to recognize the justice of the contention.

As pointed out in a resolution passed at the recent convention of the American Holstein-Friesian Association, in Richmond, Va.: "Inadequate compensation for animals slaughtered for the public welfare can only operate to discourage breeders from assuming the hazards of maintaining herds of valuable breeding animals, thus nullifying to a large degree the splendid work of the United States Department of Agriculture, our agricultural colleges and other agencies in promoting the improvement of our livestock through the use of better sires and constructive breeding."

WHO SHALL DETERMINE VALUE?—In order to arrive at a fair estimate of the value of purebred livestock, many factors must be taken into consideration. Their value for meat means nothing because in this respect they are worth little more than grades of the same condition.

How, then, can the problem be solved? By consideration of average prices over a period of years, potential yield and progeny of young stock; prices paid and received for living animals of the breed and herd; and service to the industry as outlined above.

Who is able to give fair consideration to these factors? Not a layman clearly and certainly not a stockman familiar only with market classes. An answer has been supplied by an official of one of the Eastern agricultural colleges, who suggests the appointment of a board of appraisers to deal only with contested cases or those involving high-class registered stock.

He suggests this board shall include one representative of the United States Department of Agriculture, one from the national association of the breed involved, one from the State agricultural college, one from the State livestock sanitary department, and one from the State breed association of the breed affected.

In view of the present controversy in California and the possibility of future outbreaks in other parts of the country it would seem both timely and proper to have the matter settled now along these lines.

That the owner of stock slaughtered for the public welfare is entitled to compensation, no one can deny, and that the amount of this compensation should be decided by a thoroughly-informed committee or board, seems not only reasonable but also necessary if right is to prevail.

Ayrshire Breaks Record

BY producing 113½ pounds of butterfat in one month, California Barcheskie, an Ayrshire cow owned by the University of California at Davis, has broken the world's record for that breed. No other Ayrshire cow has ever produced in a single month so much butterfat. In one month she gave 2312 pounds of milk, which tested 4 and 9-10 per cent fat.

Barcheskie is being tested for a year's record and if she continues at her present rate will break the world's

record for her breed for the year. She began her test on December 19, 1923, and has produced in 164 days a total of 11,220 pounds of milk containing 587 pounds of butterfat.

This is a daily average of a little less than 70 pounds of milk containing 3½ pounds of butterfat, enough to supply 25 average families with milk. It would have required approximately five of the average cows kept on California ranches to have produced a similar amount of milk and butter in the same time.

This remarkable cow was born on the University farm at Davis, November 22, 1916, and is an example of what can be accomplished in the improvement of livestock by the application of the scientific principles of breeding. Her sire was Willowmoor Robin Hood 31th, and her dam was Willowmoor Barcheskie Bessie B.

Barcheskie has also proven herself an exceptional mother. Though only 7 years of age she has given to the university four daughters and to her family have been added two granddaughters and one grandson. One of her daughters, California Barcheskie 2nd, holds the State record for Senior 3-year-olds, having produced 12,957 pounds of milk containing 597 pounds of butterfat in one year. A cow of excellent type herself, she is transmitting both type and production to her offspring.—W. M. REGAN, University Farm.

Know Your CALIFORNIA

Little Journeys Into Agricultural Districts

(Editor's Note—Brief, intimate glimpses of agricultural communities in various parts of the State will be published from time to time under this heading. Subjects will be chosen at random without regard to rank in production or agricultural importance. Get acquainted with your California, its opportunities and delights, by accompanying ORCHARD and FARM representatives upon these informative little journeys.)

ANTELOPE VALLEY
LOS ANGELES COUNTY

ANTELOPE VALLEY is a district too often overlooked by the man looking for land at farm land prices. Lancaster is in Los Angeles County, 47 miles by air line due north of the court house. It is the largest town in a valley 60 miles long and 20 miles wide. It has a modern grade school in a class A building and a $225,000 high school that cannot be excelled in any other rural high school in the State.

One of the main reasons why the district is flourishing is because there is an abundance of irrigation water. There are thousands and thousands of acres here where the depth to water is not over forty feet. We pump more water here with electricity than the average flow of the Los Angeles aqueduct.

Last year we shipped over 26,500 tons of baled alfalfa hay. The principal purchasers of this hay are the dairymen around Los Angeles, who are located on land too high priced to farm for hay crops. These dairymen are willing to pay a premium of $2 per ton for Lancaster hay, because of its finer quality and greater milk-producing value. The principal reason for this excellence is because there are no fogs here and hay can be baled 24 hours after it is cut without danger of sweating.

Alfalfa, dairying and poultry raising are enterprises in Antelope Valley in which you cannot lose; legitimate, safe and profitable enterprises. It is not surprising that the heaviest recent purchasers of property here have been men who originally farmed closer to Los Angeles, but on account of the increase in value of their land, sold out and then, looking around for a district in which to start again, located here in Antelope Valley—just two and one-half hours' run from Los Angeles, over an all-paved highway.

Good land, cheap land, your own economical water system, a safe, sure crop and a ready market and no failures—these are the essentials wanted by Mr. Farmer. He locates here because we have them.—FRANK B. RUTLEDGE.

Profitable Sheep Husbandry

(Continued From Page Three)

is no choicer or more wholesome meat than a 4-months-old black tail lamb.

Of course, sheep raising has its difficulties and dark sides. Occasionally dogs have wrought havoc in a flock of sheep, although this may be prevented by penning the sheep at night and by being handy with a Winchester rifle. Such ravages are not very common in a community where sheep are plentiful. Sheep are subject to many diseases, although, generally speaking, losses are very light. Occasionally there is a case of pneumonia, "sheep flu," or grub in the head, while some parts of the State still are infested with "scabies," which requires dipping.

All things considered, the average California farmer with 40 acres or more could make no better investment than to acquire a small flock of good young ewes and run them as a side line for picking up the waste about the place.

Solano Ships Early Fruit

ACCORDING to Carl H. Spurlock, horticultural commissioner, Solano County, 230 cars of fruit have left Solano County up to June 5.

Of this number 171 have left Vacaville and 59 rolled from Suisun and Green Valleys.

Vacaville has shipped from 8 to 15 cars daily for several days. These shipments contained cherries, apricots, cherries, plums and peaches.

The earliest shipments from any State of each one of these fruits came from Solano County.

Supplying State Institutions With Fresh Meat

Napa State Farm Saves Taxpayers' Money in Growing, Feeding, Buying and Butchering Animals

By O. H. BARNHILL

THE primary purpose of purchasing the Napa State Farm was to secure for the nearby Veterans' Home an ample water supply. The Farm, originally known as the Yount place, comprises 2700 acres of hill and valley land 12 miles north of Napa, and includes a water right to a beautiful little mountain stream, which debouches into the bottom of the Napa River at this point. The water from this stream is used jointly by the State Farm, Veterans' Home and the State Hospital for the Insane, near Napa.

Having a large, fine farm in a convenient location, the State decided to utilize it for a home to accommodate the "first termers" at the State penitentiary. This plan did not prove particularly successful. One reason was that the neighbors objected to the presence of convicts in the community.

Finally it was decided to use the farm as a meat supply base for the two institutions named, and also the State Prison at San Quentin and the Sonoma Home for Feeble Minded. Owen Duffy, who had made a good record as business manager of the Napa State Hospital and who had been brought up in the livestock business, was chosen to manage the Farm.

Although the Farm and Hospital are 14 miles apart, Duffy retained his position at the latter, while making his home on the former, thus saving the State from putting another officeholder on the payroll. J. F. Armstrong ably serves as secretary and assistant business manager of both institutions. C. A. Pierce is foreman of the Farm.

The plan of financing the project is to furnish the superintendent with a revolving fund of $75,000. If at any time the State should need and demand this money the manager would be required to produce the cash, an arrangement which renders necessary careful financing.

Before the State Farm was put in operation, the institutions referred to received meat from private contractors, quarterly bids being called for and the firm making the lowest price getting the business for the ensuing three months. This plan still is followed, although Duffy, having the free use of a farm and slaughtering plant, is enabled to underbid private competitors.

USE FIRST-CLASS STOCK

Taxpayers who are unfamiliar with the workings of the State Farm will be gratified to learn that it not only pays its own way but returns an annual profit of approximately $10,000. In estimating the money made in the meat business it would be interesting to estimate how much of this sum would be left over after paying interest on the capital invested in the farm and depreciation of plant and equipment. To do this intelligently, of course, would require a comprehensive knowledge of everything that all else is connected with the business.

The general plan is to buy meat animals when they are fat and keep them at the farm and convert them into meat as fast as needed to supply the institutions with fresh food. The meat is delivered by the Farm motor truck twice per week to each of the four institutions in service.

During the period that meat shortage existed in a time when County was under close quarantine, the Farm was fortunate in having on hand a large number of first class Shorthorn steers, which had just been shipped in from Nevada. The animals were three years old, weighed about 1100 pounds each and cost around $8.50 per hundredweight.

Steers usually are bought for considerably less than this price and it seldom is necessary to go outside the State to get them, but on account of the shortage of feed last winter this became necessary. Northern and Central California generally furnish all the animals needed, many cattle and sheep being driven off the range directly into the receiving pens.

Each month about 200 beeves are slaughtered, an equal number of sheep and about one-third as many hogs. Each quarter San Quentin convicts consume approximately 66 tons of beef, of which an equal quantity is cow and steer meat, the total being a half million pounds annually.

Only Hereford and Shorthorn cattle are used, beef from dairy breeds not being considered good enough for inmates of State institutions.

A high-grade herd of Herefords is being built up and now numbers 50 animals. A flock of mutton sheep is pastured on the hill land.

"Did we lose any lambs on account of feed shortage? I should say not!" exclaimed Armstrong. "We raised a 100 per cent lamb crop, which came the middle of December and three months later weighed 38 pounds per animal.

"We aim to supply only first-class pork, beef and mutton. Buyers are very particular about the quality of meat used at the State institutions, which forces us to deliver a superior product."

Most of the Farm is devoted to pasture, although fields of both large and small grain are grown, the corn being converted into silage in three good-sized silos. Animals are given the best rations obtainable and comfortably housed.

Bion Hall, who for 38 years has been in the butchering business, does all the slaughtering, with the aid of two helpers. He is considered one of the most expert workmen in his line in the United States and earns good wages. For killing, skinning and dressing a beef $1.25 is paid. Hall pays for one assistant and the State reimburses the other.

After an animal is converted into halves of beef, the latter are hung over night in an open shed, to get rid of animal heat. The beef is then held for two days and two nights in a cooling room, where a temperature of 48 degrees is maintained, after which it is put in a refrigerator, where the mercury stands at the freezing point. Trucks are used to transport the meat to destination.

Big packers claim they sell meat on such a close margin they are forced to look to the by-products for their profits. This important department of work is not neglected at the State farm. The blood is run into a concrete-floored pen, where hogs pick up considerable feed. Heads and other portions of the carcass containing material which cannot profitably be used for food are cooked and used for hog feed.

Bones are sacked and sold to manufacturers of various bone products. The liver and other edible internal organs are sold in "sets" and material for ox tail soup is not wasted. Lard and tallow is rendered and sold for the highest market prices, grading first class.

Sheep and cattle hides are the most valuable by-products. The latter are carefully preserved with pulverized rock salt and stored in concrete vats. Steer hides weigh about 60 pounds each and bring the highest packers' price. One reason why it is possible to obtain top prices for hides is because they are uninjured in skinning and all fat and flesh removed. San Francisco hide dealers bid for State Farm hides.

"Is Bion Hall still doing the killing?" is the only question they ask, before offering the highest market price.

Buyers accept hides when not more than four in a hundred show cuts. In the last lot of Farm hides sold, only one in 600 showed a mark of this kind, which evidenced excellent workmanship.

Ex-Governor Stephens holding Beau Rosemont, type of fine beef stock raised on the State farm. O. M. Duffy, business manager, next to bull.

Bion Hall, California's champion "killer" and head butcher at the State farm.

State farm slaughterhouse, where each month nearly 500 cattle, sheep and hogs are killed to supply meat for the State hospital at Napa and four other State institutions. This plant is a model of efficiency.

Cattle barn and silo. Although the State farm comprises over four square miles of hill and valley land it is devoted chiefly to caring for the animals which are grown elsewhere and brought here for slaughter.

Use Agricultural Gypsum

ALFALFA in the rotation with wheat is benefited with agricultural gypsum, according to Prof. R. P. Cope of the State College of Washington. This is because the sulphate sulphur made available as plant food each year is too small in amount for big yields of various legumes, such as alfalfa and clover. The increased yields secured with gypsum have varied from two to 1000 per cent and have averaged about 50 per cent.

Besides being plant food, agricultural gypsum is known as a soil amender. The heavy soil is loosened, permitting greater freedom of moisture and air movement. The power required to turn the soil is also reduced. Soils are improved because increased root development augments the vegetable and nitrogen content. The increase in vegetable matter also tends to prevent washing of the soil.

A five to six-year stand of alfalfa has a wonderful effect on grain crops which follow in the rotation.

"While the sun shines"

How a man and tractor take the place of four men and teams in the hay field. Tractors, however, are not generally used in haying operations, due to the difficulty of adapting motor power to handling of dried forage crops.

Haystacker in action, dumping load of forage pushed onto it by buck rake. This method relieves the farmer of one of the hardest jobs in the country: pitching hay.

Old-style dump rake and mower. In humid districts a side-delivery rake can be used instead of a tedder for loosening up hay after a rain—and the driver never has to think about working a dump trigger.

Farmer's wife helps out by leading horse.

Piling baled hay with a stacker. This method of storing hay is impractical where there is danger of rain and sometimes results in orchardists getting a cheap supply of valuable nitrogenous fertilizer.

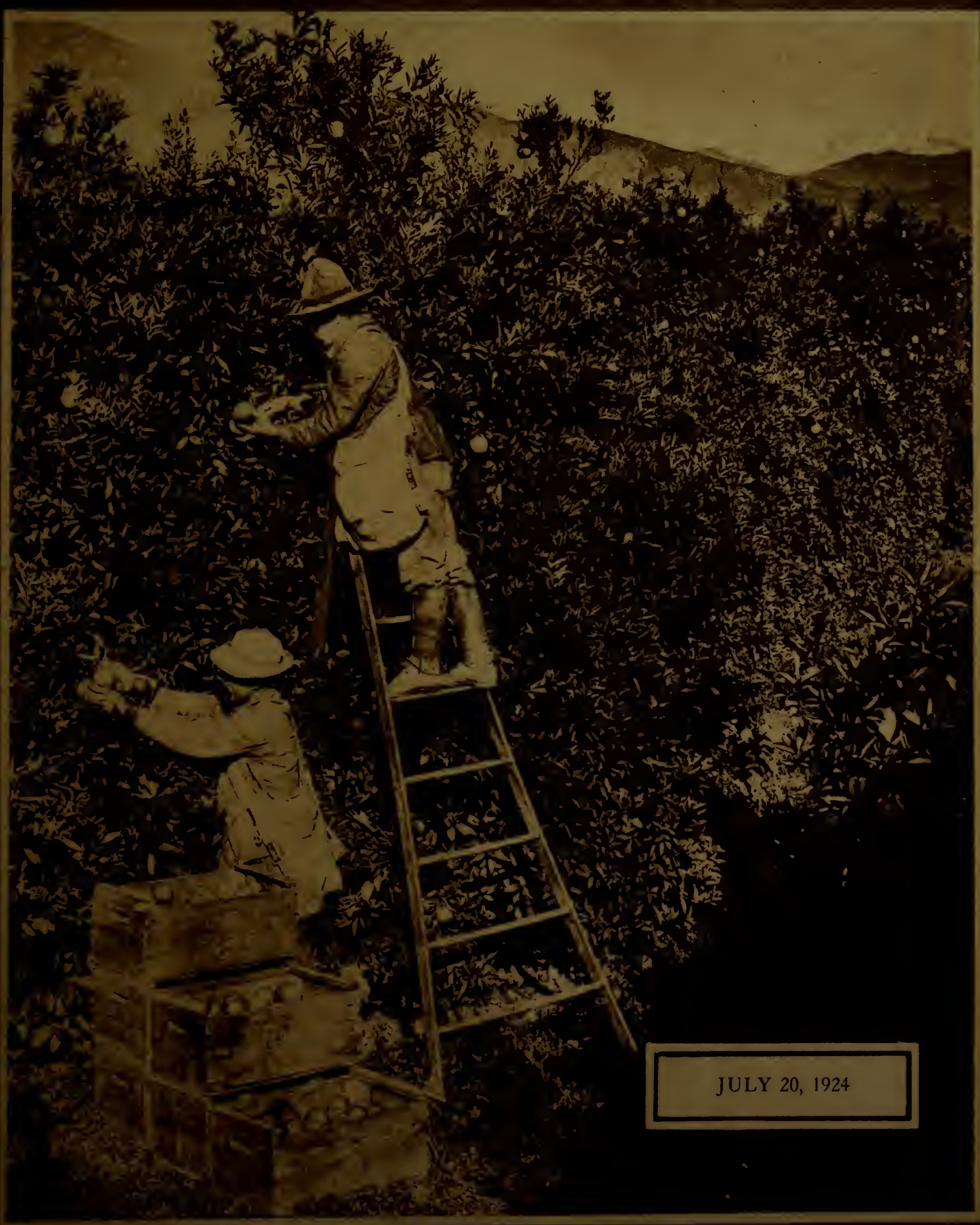
This hay loader pulled by a tractor is a great labor saver. It will pick up hay from swath, but better results are obtained by first windrowing with side-delivery rake.

Street scene in Corning (Tehama County) which is located in the midst of a general farming country. Intensive cultivation of small tracts is the rule. A Heinz pickle factory pays fancy prices for Corning olives, which attain unusually large size. Many other kinds of fruit are grown and a fine community spirit manifested.

Buck rakes and stacker in action on a large California hay farm. Horses still are the mainstay of the hay field, but gradually are they being displaced by power-operated machinery. Each year an increasing tonnage of alfalfa, mixed with other crops, is being put into silos, which preserve the greatest possible percentage of its feeding value. California hay is scarce and high this year.

Humboldt County Farm Adviser Logan's daughter calls attention to the splendid growth made by this patch of Harding grass. "Try it," she advises.

ORCHARD and FARM



JULY 20, 1924

Soil Improvement Paves Way to Citrus Success

Leaving the Beaten Path

THIS is the story of an orange grower who does his own thinking. While some of his methods are at variance with those advocated by other orchardists, they have the undoubted virtue of producing results—and that is what counts, after all. Closer study of chemistry is the crying need of citruculture, in the opinion of this successful producer with more than forty years' experience.—*The Editor*

A CHEMICAL laboratory may seem an unnecessary adjunct to an orange orchard, but R. S. Thompson, successful Highland (San Bernardino County) citriculturist, declares he needs it in his business. Twelve years ago he undertook to improve an unprofitable grove. The trees had been cared for according to accepted standards, therefore he was forced to devise new methods to make them bear more and better fruit.

Since an orchard derives its principal support from the ground, and chemistry is the key that unlocks soil secrets, a careful study was made of the factors controlling plant growth and means for their betterment. Some of the conclusions reached as a result of these original investigations were diametrically opposed to those held by agricultural authorities, but experience proved they were correct and both experts and farmers now are adopting Thompson's theories and methods.

IMPROVES SOIL CONDITIONS

An examination of the ground showed that irrigation water was not reaching the subsoil. The first foot contained 13 per cent moisture; second, third and fourth, 6 per cent; fifth, 8 per cent. It was found that when the moisture content fell below 6 per cent tree leaves would wilt, therefore the danger line never was far away.

After seven years of soil improvement work each of the first five feet of soil contained 11 per cent moisture, indicating it was in optimum condition. How was this result obtained?

"In the first place," explained Thompson, "I discontinued the practice of clean, constant cultivation, which then was considered essential—and is yet by many fruit growers. My methods, in fact, were just the opposite of those advised by agricultural experts.

"Cultivation is sterilization. It not only robs soil of fertility, but destroys its texture as well. Some farmers regard with great satisfaction a good dust mulch, which really is one of the worst things to have in an orchard. Flow water over such ground and see how it runs together and puddles. When soil is in first-class condition it is loose and porous.

"Cultivation takes the very life out of soil. A Government test showed that cultivated, uncropped soil lost as much fertility as that which was planted to grain. My plan is to cultivate just as little as possible."

"How about loosening up the soil to admit warmth and air and to permit moisture penetration?" this agricultural Philistine was asked.

"Soil in proper condition is sufficiently porous for these processes," he explained. "Here in Southern California the ground becomes too hot in the summertime, if cultivated."

"But how do you keep the weeds from robbing the soil?"

"Weeds don't rob the soil; they help make plant food available for tree growth, when incorporated with the ground. That's nature's way of restoring fertility. Of course, we can improve upon nature by growing the best plants for this purpose. True, this method takes more water, but it is well worth the added expense. Instead of irrigating once a month during the growing season, I water my trees every ten days.

"This natural method really is cheaper than cultivation when the cost of labor is taken into consideration. It figures this way: Three cultivations per month, at $1.50, $4.50; seven acre feet of water, $7.50; total, $12. Cost of water for cover-cropped ground, $8.90; saving effected, $3.10."

Orchardists long ago learned it was a good thing to grow winter cover crops and thus hide during cold weather the scar which cultivation makes on the face of nature, but Thompson considers summer cover crops even more essential.

"Shading the soil with plants keeps the soil cool during the daytime and warm at night, maintaining that equable temperature which is necessary for maximum production," he explained. "Bare ground sometimes is heated to a temperature of 130 degrees.

"Back in Ohio snow is considered a good thing for the winter wheat crop, because when the ground is covered with a blanket of snow it is kept warm and moist and prevented from the heaving incident to freezing and thawing. A summer cover crop is equally good for an orange crop."

Millet is sowed in the spring, cow peas in the summer and cow horn turnips in the fall, the mature crops being disked in, rather than plowed under. One orchard hasn't been plowed for 15 years and another for 20 years.

The subsoil was not loosened up by mechanical means, which is considered a great waste of labor, but by the application—in three successive years—of 40 tons of ground limestone rock per acre. Lime improves the soil in other ways besides neutralizing acidity.

The accepted practice of using barnyard manure, as well as of cultivating and subsoiling, was discarded by Thompson, who regards fertilizing ground with stable manure as wasteful, unsatisfactory and inadequate.

"Spoiled alfalfa hay at $15 a ton is a much better buy than barnyard manure at going prices," he asserts. "The former contains 85 per cent of organic matter, while the latter has but 20 per cent.

"It is a mistake, also, to try to mix animal husbandry with fruit growing. Running chickens in an orchard, tying a cow to the orange tree and pasturing goats in a grove may sound fine, but the theory is all wrong. The fertility which animals produce as a byproduct can be obtained much cheaper by growing cover crops. An animal returns to the soil in the shape of manure only a small part of the fertility consumed in the form of feed. It is much more profitable to buy poor alfalfa hay and feed it direct to the ground than to purchase good hay at $25 a ton and take what manure an animal makes.

"The man who takes sufficiently good care of his animals to make them pay almost always neglects his orchard, and vice versa. As for myself, if I've got to keep livestock in order to grow fruit, I'll quit."

Twenty pounds of mixed fertilizer, containing 6 per cent nitrogen, 8 per cent phosphoric acid and 2 per cent potash, and five pounds of sodium nitrate are applied to each acre. It is necessary to supply ground with five times as much nitrogen as is removed by a fruit crop.

Last year the agricultural world was astonished to hear Government soil experts announce that cultivation is of no value in holding moisture in the soil and that water is not drawn to the surface by capillary attraction. Thompson, however, learned these truths years ago by soil tests, taking his cue from the Rothamsted experiment station, which found that "continuous cultivation exhausts the soil more than cropping." The only difference in the moisture content of cultivated and uncultivated soil in Thompson's test plot was 1 per cent in the top six inches.

CROPPING VS. CULTIVATION

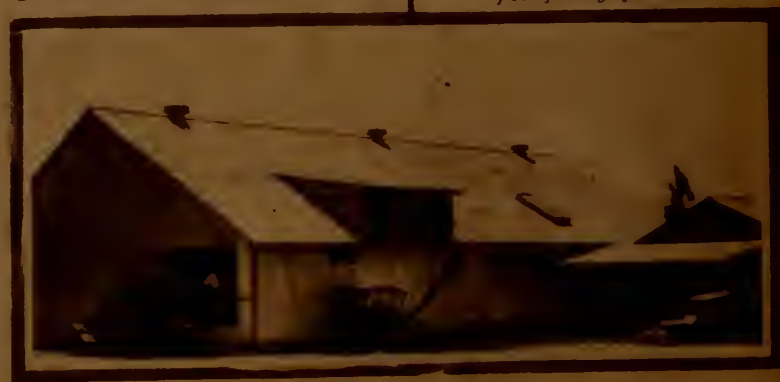
In support of his theory regarding the paramount importance and supreme value of cover crops as fertilizing agents, Thompson cites Duggar's plant physiology, a standard authority.

"Green plants always have supplied the earth with organic matter, including fuel. The leaf-green which they contain is the strongest link binding living things with the sun, which is the one ultimate source of radiant energy available upon earth. This is the means whereby organic food is made."

"The conditions necessary," explains Thompson, "for securing the greatest number of beneficial bacteria are: Uniform temperature and moisture conditions, plenty of (Continued on Page 9)

Thompson's chemical laboratory, where he has solved important soil problems, is located on the other side of this attractive farm home

Although Thompson manages two packing houses, he is a shirt sleeves farmer, having begun orange orcharding by grubbing brush. Only 5 per cent of the groves yield as well as the one he has built up.



Unloading oranges at the new packing plant of the Highland Exchange Association. The Priscilla brand, packed here, sells for fancy prices.

ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY

JULY 20, 1924

Hawaii's Pineapples Mean Much to California

Island Product Sends Stream of Gold Through the Golden Gate

THE $30,000,000 Hawaiian pineapple crop may be regarded as a real California asset, for San Francisco is the continental fountain-head of the industry. The amazing growth of this unique and fascinating American enterprise makes one of the most romantic chapters in the development of the Pacific West. Here are just a few "high-lights."—*The Editor*.

By ALBERT J. MASON

[Acknowledgment is made to the Hawaiian Pineapple Co., Ltd., the Association of Hawaiian Pineapple Canners, the Matson Navigation Co., and the Pacific Commercial Advertiser (Honolulu) for certain of the facts and figures included in this article.]

CONCEIVED by Captain John Kidwell, who set out the first five-acre plantation in Manoa Valley in 1885, the pineapple industry of Hawaii has grown to the point where it represents an investment estimated at more than $20,000,000, and an annual output at nearly twice this figure. Commercial plantings now comprise a total estimated at 45,000 acres.

Such rapid expansion of a specialized, intensive agricultural undertaking has involved problems in production and marketing of no small consequence. Many of these have been solved; some are yet to be overcome.

Strange to say although the new development was destined to mean much to California, as recently as 1908 considerable hostility towards the industry was reported among growers of other fruits in the Golden State. The increasing consumption of all kinds of fruits, however, and the subsequently rapid development of the canning end of the business, has resulted in dispelling to a great extent fears of harmful competition.

There are literally miles and miles of pineapple plantations on the Island of Oahu, where there are ten canneries. The canning companies also operate on Maui Island, on Kauai and the Island of Hawaii. Recently the Island of Lanai, owned by one of the large companies, has been improved with a harbor and other facilites and will be planted to pineapples as rapidly as preparations are completed. Some planting has been done also on Molokai.

PRESENT WONDERFUL SIGHT

Whence came the name of this golden fruit? The term "pine," of course, is derived from its resemblance to a pine cone, while the term "apple" is a very ancient word denominating a fruit. Pineapples grow on a plant scarcely waist high, one or more to a plant.

The clean straight rows, with the spiny sharp-pointed leaves, make a picture, the beauty of which has brought forth exclamations of delight from thousands of tourists. Since "pines" require no more than the natural rainfall, plantations are located principally in the foothill and mesa districts, the lowlands where irrigation is feasible being given over largely to sugar cane. Not only the sides, but also the tops of steep hills are planted to pineapples, and even the floor of the gulleys or ravines in some instances.

A recent development is mulching with paper, which adds to the picturesqueness of the fields at certain seasons.

Seeds are rarely formed in pineapples. New fields are started by planting slips, suckers, or the leafy crowns cut from the fruit. Planters seem to prefer the suckers, because they grow up a little faster, but any of the three types are good and all are used.

Preparation of the ground consists of plowing and disking the soil to a considerable depth and later "floating" it to level the surface and break up the clods; then furrows are run at intervals to drain the fields.

The planting operation is simple. Suckers, slips, or crowns, which have lain exposed to the sun for a few days to become seasoned, are merely stuck into the prepared ground to a depth of an inch or two. In a few weeks these cuttings root and begin to put out leaves.

There are several schemes for planting, but whether set out in single or double rows it is a matter of getting the maximum number of plants per acre and allowing necessary space for cultivation and harvesting.

The average plantation has between 6000 and 7000 plants per acre. In a year to possibly fifteen months after planting the plants mature, and then in the heart of the plant the first sign of the fruit appears in the form of a blossom not unlike a thistle blossom. The development from this blossom is the flower-head, which appears at the top of each stalk or main axis. These flower-heads look like small pineapples, but have a number of blue or violet flowers projecting from the sides. After a week or more these flowers wither and disappear.

In very rare cases, and only where fertilization takes place in the flowers, do seeds form within the fruit.

Five or six months after the first appearance of the flower-heads, the fruit matures, and is then ready to eat. In all, a period of 18 to 20 months has elapsed since planting, and the first crop is now ready for harvest. This is called the plant crop, and is usually a fine yield of large fruit. In tonnage, however, this first crop is not equal to the second, which comes a year later. The second and succeeding crops consist of a larger number of pineapples—there being at least two pineapples to each plant. The average commercial life of a plant is 5 years.

At a certain stage of ripeness the sugars and flavors of the pineapple are at their best, and just then the fruit must be picked. If picked green the flavor is inferior, and if too ripe fermentation has begun. To manipulate the harvesting of thousands of acres so that no fruit is picked green and none allowed to ferment, and at the same time to keep the daily quantity nearly uniform, that the canner may be evenly supplied, is the work of the field superintendent, and it is a man-size job.

The harvesting of pineapples is comparatively simple. Each laborer carries a sack over his shoulder, and passing along between two rows, bends over the ripe fruit and breaks the stem. The bag when filled is deposited at the roadway where the crowns are cut off and the fruit placed in truck to be hauled to the railway, or direct to the canneries. After the first crop is removed new shoots are produced, of which all but two usually are removed for propagating purposes.

Upon reaching the canneries, the fruit is handled with great rapidity, quality being largely dependent upon this factor. Special machinery has been developed for processing the fruit and the great institutions, which pack nearly 6,000,000 cases annually, are the last word in sanitation, efficiency and careful management. Among the big canners are the Hawaiian, Ltd., Libby McNeill and Libby, Haiku Fruit and Packing Co., Baldwin Packing Co., Pauwela Co., California Packing Corporation.

Men and women of many nationalities are employed in this industry, which it is estimated gives employment to between 10,000 and 12,000 persons. As pointed out by Cruse Carriel, well-known writer and newspaper correspondent: "This mixed labor has had a very important part in making the product which has elbowed nearly every other pineapple off the shelves of the corner grocery, whether it be in Ohio, Vermont, Texas, or Montana, or even in Trinidad or Guatemala. In the aristocratic hotels of London and Paris, of New York and Palm Beach, in the dining cars of transcontinental trains, upon the most palatial liners, and in the veriest crossroads towns of Virginia or South Carolina, the product resulting from the muscled labor of the sons of Nippon, Korea, Philippines, China, Portugal, Porto Rico and Spain, is now a de luxe offering to guests and residents."

"BUST," NOT "PLUCK"

From Mr. Carriel's pen also is this entertaining account of his first experience in "plucking" the ripe fruit, which by the way he says he expected to find growing upon a tree, until he was initiated into the mysteries of pineapple culture.

"The real treat of the day was the eating of my first really, ripe pineapples, plucked right from the plant. That word 'plucked' is not just the one to describe the operation of picking a pineapple. One might pluck an apple, or an orange, or a fig, or even a plum, as did our friend, Jack Horner. But when it comes to 'plucking' an eight or ten-pound pineapple it just doesn't fit—too much like a 350-pound lassie, bouncing a toy balloon on a cement walk under the delusion that she is performing an aesthetic dance. 'Bust it off' seems better to fit the case.

"But this pineapple—this luscious, delicious palate-ticker, the very recollection of which stimulates a flow of saliva that threatens to drown me in my own excretion—ah! that I had the vocabulary of Roget, or even one of his books con- (Continued on Page 10)

Adjusting Supply of California Vegetables to Meet Demand

How Growers May Aid in Stabilizing Market by Following Definite Cropping System

By R. G. RISSER
Manager California Vegetable Union

THERE is a wide variation in the income secured from different crops grown any particular season, and also a wide variation in the results from a given crop in different years. While this variation in returns may be due to one or more of a number of possible factors, the price factor—which is regulated largely by the relationship between supply and demand—is most important.

R. G. RISSER

A better adjustment between the supply and demand of various kinds of vegetables is highly desirable from the standpoint of producers, consumers and the different agencies engaged in distribution. Even with a wide geographical distribution of shipment a temporary surplus of perishable products may prove very demoralizing and depress the market out of all proportion to its magnitude.

Yet proper adjustment is not simple. The fact that shipments of vegetables originate in a number of States and many localities complicates the problem and adds uncertainties which can not always be entirely overcome. Weather conditions especially are an uncertain factor which cannot be definitely counted upon in advance, yet they sometimes affect the supply and consequently the prices very materially.

[illegible] conditions can be due to [illegible] periods of acute over- [illegible] production policies along systematic lines. There are certain dangers which should be generally guarded against and certain precautions which should be taken to prevent prohibitive competition.

Serious mistakes sometimes can be avoided by acting upon a comprehensive knowledge of existing crop prospects. The intention of growers to plant, when correctly determined, is valuable information—if obtained early in the season even though it is not strictly accurate.

TIME ELEMENT IMPORTANT

Crops like potatoes, onions and cabbage, which are held in storage and move into consumption in competition with California products fresh from the fields, affect the demand whenever there is an abnormally large output of the main crop in the northern producing sections.

Spring potatoes, winter cabbage and extra early onions are products which may sell for low prices if there is a surplus of storage supplies and whenever the indications are that the storage crop is excessive the outlook for good prices is not favorable. In such cases it usually is unwise to plan on maturing large supplies for shipment until the storage stock has been exhausted or has become unsuitable for sale.

In interpreting crop information and storage data, the time element is of special significance. One should know the shipping period of each locality which has a bearing on the situation and great care should be exercised to time the planting dates accurately, in order that supplies will be available for shipment neither too early nor too late to take advantage of the most propitious marketing period. Ordinarily successive plantings should be made at short intervals to promote maturity of a fairly uniform and continuous supply throughout the shipping season.

The most potent factor in determining the extent of planting of any particular crop is very commonly the current price. A high price frequently influences producers to put in a comparatively large acreage while a low price discourages planting. Temporary prices, however are not a safe guide when considered alone. It is well to study price trends and tendencies, but the underlying causes should be taken into account in connection with fluctuations which are likely to be followed by reactions.

In many cases high prices are the direct result of seasonable conditions or weather developments in some producing section and cannot be relied upon to continue for another season. Unusually low prices may be due to exceptionally favorable weather conditions bringing about the simultaneous maturity of crops in different districts, or to big yields or prolonged bearing.

If the producer understands that a freeze or a flood in some of the Southern States has ruined extensive areas, curtailed shipments and thus boosted prices he will quickly recognize that such a condition is but temporary and should not be the basis of his cropping program.

Some of the most successful producers, from a financial viewpoint are those who have a definite cropping plan which they adhere to consistently and persistently year after year. Their acreage of each crop is relatively constant and in the long run their farming is very profitable. They do not always fare equally well each season, but they are in the game continuously and realize splendid returns when prices are unexpectedly high, due to conditions which no one possibly can foresee.

DIVERSIFICATION IS ADVISED

If all producers would tenaciously work on such conservative plans production would be better stabilized and returns would not vary within such extreme limits. If the choice of crops is based upon data applying to the average season over a period of years, the program is quite likely to be successful—granting, of course, that other conditions are reasonably favorable.

A diversity of crops minimizes the chances of an unprofitable season and a well balanced assortment of products reduces the element of risk in farming; for while there always is a possibility of overproduction of a single crop during a short period, the prospect for a general overproduction of vegetables is much less.

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FRIENDLY PHILOSOPHY

By THE EDITOR

"CALL OF OPEN ROAD"—When the automobile dealers broadcast their slogan, "Call of the Open Road," they're not speaking of those sections within 50 miles of our big cities!

The suburban roads, alas, aren't very "open" any more. But California has a lot of "back country" that is even more wonderful than her magnificent cities. We who hobnob with the "dirt farmers," fruit growers and stockmen, know the real lure of the vast and beautiful hinterland—and the true "open road."

For sheer motoring pleasure as well as profit in studying California's agricultural resources may we recommend the trip from the Capitol City to the north end of the Great Valley?

Mile after mile if you choose your hours of travel wisely—when you meet scarcely a car (nor pass one, unless you succumb to the temptation to be a "scofflaw" in respect to speed regulations).

That does not mean, however, that this is an arid, unsettled region! It is simply that the towns are farther apart, the ranches larger, the development extensive rather than intensive.

THE REAL WEST—One finds a touch of the real Old West in Tehama County where this is written.

Red Bluff is a true stockmen's and farmers' town, modern and boasting fine homes, but practically devoid of industries. Supported by the rich surrounding country, its greatest resource is its people!

From Chico to Red Bluff, brown stubble fields alternate with oak-studded pastures. There are orchards, alfalfa fields, stock farms, and (at Los Molinos) a more intensive development—subdivision of the vast old Cone ranches.

To the east stretch the foothills and buttes, winter range for thousands of sheep; beyond, the High Sierras, their summer home.

Overlooking the valley stands Mount Lassen, our only active volcano, sullenly exhaling steam and vapor, but apparently content with this minor demonstration of its powers.

NO EARMUFFS NEEDED—One doesn't need an active volcano to be reminded of warmth, however! If you are from the Coast, and visiting the Great Valley only for pleasure, come in late April or May, when all is green, cool and beautiful.

Yet any visitor who has lived in the Middle West must agree with the cautious suggestion of the native Valley-ite that it's a "dry heat" and not as unbearable at 100 degrees as Kansas, Nebraska or Illinois at 85 degrees.

We know all about that death-dealing corn-belt heat and the "down east" variety as well, and we'll take the California Valley any time—yes, even at 100 or more!

Then, too, if Old Sol seems particularly vindictive, the Sierra heights are but a few hours away, and it's not so far to the Coast, either; whereas the Kansan must go to Colorado and the Iowan to Wisconsin or Minnesota to get even a suggestion of "change."

RICE AND BARLEY—Rice has meant a good deal to this North country—both in wealth and in "grief." But all in all it has been a blessing, for it has brought under irrigation thousands of acres formerly regarded as practically worthless.

And, strange to relate, *(Continued on Page 10)*

WHAT'S NEW? *Keeping Abreast of Agricultural Progress*

Co-operative Wool Warehouse

THE California Wool Growers' Association recently established at San Francisco a warehouse for handling members' clip. Arrangements are being perfected to make the usual advance to producers. The cost of handling will be very low. Storage and insurance for six months will be one-half cent a pound.

Wasco Melons Make Money

THE Wasco (Kern County) melon crop is expected to total 1000 carloads this year, of which one-third or more are cantaloupes. Shipments began July 1. Prices began with $32 to $36 a ton, compared with $20 to $30 last year.

B. C. Unruh is reported to have sold $5000 worth of melons from two acres last year, receiving a cent a pound for his crop. This year he has 22 acres of vines.

Grapefruit Peel or Citron?

THE canning of grapefruit pulp presents opportunities for candying the peel, which can be used instead of candied citron, of which 5,000,000 pounds were imported into this country last year. Acting upon this idea, a cannery at Avon Park, Florida, has contracted with a large wholesale grocer to make and deliver 100,000 pounds of candied grapefruit peel, half this summer and the remainder from next winter's crop.

Copper Carbonate Kills Smut

TREATING seed grain with copper carbonate dust resulted in almost 100 per cent control of smut in Butte County last year, according to Farm Adviser Drobish.

A three-year test of nitrate of soda and superphosphate in a citrus orchard near Wyandotte showed that for every $20 per acre spent for these fertilizing chemicals the crop was increased $40. Sulphate of potash gave little results.

Sell Cattle Co-operatively

NEARLY one-half the beef cattle of California have been pledged by their owners to a co-operative marketing plan which has been worked out by the California Cattlemen's Association, according to Roy M. Hagen, secretary of the organization.

The recent quarantine interfered with meetings held to further the movement, but work has been resumed and is expected to continue until 75 per cent of the cattle of the State have been signed up, when the plan is to be put in operation.

Placer Trains Fruit Packers

A FOUR-WEEKS' fruit packing school was conducted by the Roseville Union High School, beginning the middle of May. The classes were conducted in the evening and the average attendance was 48.

Ranchers furnished peaches, plums and cherries for practice work and several packing house managers donated a portion of their time to assist in giving instructions.

Anti-fly Campaign Succeeds

AN anti-fly campaign recently conducted by Gladys M. Nevenzel, Sacramento County home demonstration agent, at Rio Linda, was very successful. Many flytraps were constructed and put into operation and premises cleaned up, effecting a noticeable decrease in the fly population.

Most of the work was done among school children, who were awarded prizes for best essays on fly control. The first award went to John Keiser of the fourth grade, and the second to Margaret Otterburn of the seventh grade.

Eggs Flood L. A. Market

BECAUSE Los Angeles is the highest egg market in the United States, Oregon and Washington eggs are being sent in carlots to supply the Southern metropolis. In a single recent week 22,000 cases—nearly 8,000,000 eggs—were received from outside points.

Northern growers are enabled by lower production costs to undersell Southern California poultrymen, even after paying for long freight hauls. Those who see the "handwriting on the wall" will meet this competition by lowering their production costs, advises Cornelc G. Ross, president Poultry Producers of Southern California, who suggests heavier laying hens, better methods of brooding and feeding and buying supplies co-operatively.

Fake Lice Remedies

CO-OPERATIVE tests conducted by the State Department of Agriculture proved conclusively that liquids, tablets and powders mixed with drinking water or food of poultry are of no practical value for the control of lice and mites. Nearly 100 fowls were used in the test which were made at the University Farm at Davis. Two sets of experiments were run and in some cases the remedies were administered at twice the dosage recommended by the manufacturer.

After completion of the experiments, which were conducted over a period of two months, it was found the fowls receiving the remedies were fully as lousy as fowls which had not been treated. In one case over 700 live lice and mites were removed from a fowl which had been fed one of the remedies at intervals during one month and in accordance with the directions on the label.

Enlarge Pacific Dairy Show

THE Pacific Slope Dairy Show, to be held at Oakland next December, will include exhibits from Eastern States, Mexico and the Orient. The show held last year was a great success and this year's exhibit promises to be still bigger and better.

China and Japan are taking great interest in establishing the dairy industry in their country and are looking to the Oakland show as the best place to get in touch with all phases of the business.

Making Record Raisin Sales

DURING the first five months of the present year nearly five times as many Sun Maid raisins were sold as were disposed of during the corresponding period of any previous year. During May 221 car loads were sent out, compared to 87 last year and 24 three years ago.

These record sales rapidly are diminishing available supplies and preparing the market for the coming crop.

S. P. Shortens Shipping Time

THE recent acquisition of the El Paso & Southwestern Railway by the Southern Pacific gives the latter 1200 additional miles of track and a new transcontinental route 70 miles shorter than the one now used. The new arrangement also will give double trackage into California.

The El Paso passes through Phoenix and crosses the Colorado River 30 miles north of Yuma, joining the Southern Pacific near Indio. The new route has low grades which, with the shorter distance, will lessen the shipping time to Eastern points.

Join Walnut Association

A LARGE increase in membership is reported by the California Walnut Growers' Association, Los Angeles, California. Three large new locals have been added within the last few months, making a total of 44 local growers' associations affiliated with the central organization.

These three locals will bring about 700 tons of walnuts into the association. The additional acreage of bearing trees is 2000, besides a large acreage of young trees soon to come into bearing.

This gives the central body control of 87 per cent of all the walnut acreage of the State and brings 84 per cent of all the walnut growers of the State into the membership.

Ben Gonnadoit Says

Folks are always a-chidin' me because they say I'm lazy, but without admittin' this is so, I maintain laziness kin be a virtue.

Look at all th' wonderful inventions that has resulted from th' so-called laziness of man! He got tired o' pullin heavy oars and rigged up a sail t' drive his boat; then got tired o' haulin' the heavy sails around an' invented th' steam engine.

Now they even have automatic machines t' fire th' boilers, so they ain't nothin' t' do but turn on th' steam. Before long all th' boats 'll git electric power by radio from shore.

I wish I'd been born twenty years later. The next generation prob'ly won't have t' do no work at all!

And in farmin' see what has been done because of man's laziness. Think how much hard work is done away with by labor-savin' machinery. Of course, a farmer ain't always got th' money to pay for it, but when th' cost of farmin' riz above th' income, CREDIT came to th' rescue!

Now practically all farmin' is done on credit, which enables us t' have a lot of things we couldn't afford if we had ter pay cash. Ye hardly ever hear of a farmer sufferin' a physical breakdown any more, because he has so much labor-savin' machinery. Now he has a nervous breakdown instead, through worryin' about how to pay fer it.

This here so called laziness may be a pretty good thing after all. Simply because a man puts off doing a disagreeable job, that don't mean he's lazy; he may simply POSTPONE it.

That's the way with me. I've postponed quite a few things but my conscience don't hurt me none as long as I still INTEND to do 'em some time. I don't think I have ever lost sight of anything I've postponed, although [illegible] pile up on me so fast, they may be some plans that won't never mature.

Only last month I postponed fixin' th' starter on my flivver, an' while I was crankin' it, th' motor backfired an' broke my arm. Now at first thought, this might seem like punishment fer laziness, but it proved t' be a [illegible] in disguise.

Ye see I had [illegible] accident insurance policy for a long time an' ain't never had no use of it. In fact I was fer lettin' it go but my wife has been a-keepin' up th' premium with egg money.

Anyway, it paid th' doctor bill an' is now bringin' us in $100 a month right at a time when I didn't know where th' cash was comin' from t' buy groceries! [illegible] me an excuse t' git [illegible] at th' bank. So you see it ain't always safe t' [illegible] a man fer what appears t' be laziness. [illegible] GONNADOOIT.

Branding Time on a Big Mono Range Stock Ranch

How Union Land and Cattle Co. Grows Million-dollar Crop of Beef, Wool and Mutton on 1,500,000 Acres

By W. S. GUILFORD
Manager Butte City Ranch

IT WAS all in the day's work. Nobody thought there was anything special about it and if I hadn't thought to look at my watch before the job started and again when it was finished I would not have realized that the calves had been caught, ear-marked, branded on the jaw and hip and the bull calves castrated all in an hour. More than a calf a minute.

There were eight men on the job: two ropers on horses, Bill Cunningham, cow boss; Adriano Gonzoles; Art Plumer superintendent of the ranch, who did the ear marking and castrating; Pete Allred, Jess Cunningham, Tom Kerisky and Bill Olsen to catch and hold the calves and put on the branding irons, and Manager Harry Petrie.

It was in June at the Antelope ranch at Topaz (Mono County), 80 miles south of Reno, Nevada.

This is one of the units of the Union Land and Cattle Co., which owns 355,000 acres of deeded land in Nevada and California and 100 000 cattle and sheep, which range over 1,500,000 acres. The annual "turn-off" sells for over $1,000,000.

All of the properties are under the management of Harry Petrie, considered by many competent to judge, to be the best range outfit operator in America.

Over 40,000 tons of hay are cut, stacked and fed.

There is lambing, "rounding-up" the beef and classing cattle for different fields and ranges—and finding markets for an immense amount of beef and mutton. Then there is machinery to be kept in order and buildings in repair; the carrying capacity of fields and ranges to be estimated; thousands of acres of meadows and pastures to be irrigated—these and many, many more jobs to be planned and executed on this cattle and sheep kingdom.

There are some fundamentals, declares Petrie which are necessary to turn raw materials into finished meat to the best advantage. Here they are:

Good blood must be used in the breeding herds and flocks. He buys the best rams and bulls obtainable.

Animals must be kept growing and thriving in order to mature the most meat at the earliest possible age. Plenty of feed must be provided for this. He believes in keeping as much stock as his feed will raise and fatten, rather than overstocking, which makes it necessary to keep cattle until they are four or five years old—instead of selling them as two or three-year-olds.

"It costs from $15 to $25 per year to keep a cow or steer," Petrie points out. "They must be sold young or they lose money."

Expenses must be kept down to a minimum. It is the easiest thing in the world to keep a big crew busy, but to get the work done by a few men requires a manager and organizer.

But let us return to the calves.

The "cow crew," consisting of seven or eight men, with a camp outfit and cook and a "remuda" of about 100 horses work everywhere there are cattle driving from one range to another or to market—and handling the cattle in the big pastures. This crew handles 7500 cattle.

The evening before the branding is to take place they "cut out" from a herd of a thousand or more cows and calves a bunch of 125 or 130. This has to be carefully done, in order to keep the cows and calves in pairs. To mark the calves and vaccinate the cows is a day's work.

This bunch of stock then is driven to a smaller pasture next to the corral. The first thing is to sort the cows from the calves. On some ranches this is done by means of a chute with a dodge gate in the end, which controls the entrance to two pens, the calves going in one, cows in the other.

But at this place they were sorted by men on horseback, the cows driven out and the calves held back. Only once or twice did a calf get away and have to be roped and dragged back to the [illegible] by the cow horse with the [illegible] around the horn of the saddle.

[illegible] the calves from the cows is [illegible] by six good men on horseback. And these were good men, riding good horses. The calves then are driven into the big, round corral where ten branding irons are in the fire. This fire is in a pit 10 inches deep, 2 feet wide and 8 feet long. Pinion wood chunks are used for fuel.

Two men, the "ropers," come into the corral on horses—the other men leave their horses outside and throw, hold and brand on foot.

The ropers use a 60-foot braided half-inch rawhide rope. The loop in the throwing end is braided around a rawhide "hondo," or ring about 1½ inches across. In order to appreciate how skillful these men are one has but to try to throw a rope and catch a calf by one or both hind legs, especially to pick a particular calf out of a big bunch, as is necessary after most of them have been branded. But these experts rarely miss a throw.

The calf is thrown, the thrower catches it by the tail and gives it a quick jerk and it is on its back. Another boy holds the head, the hind legs being stretched out towards the saddle horse. The calf thus is held securely and has no chance to struggle and hurt itself.

Then Art Plumer, superintendent of Antelope group of ranches, takes a slice off the end of the left ear and castrates the bull calves. The ear ends are put in a box to keep tally.

Then the two branding irons are put on, one on the jaw, the other one on the hip.

"Rock the iron from end to end and you get a good, clean brand without blotching," instructs Art. "When she's cherry red she'll peel."

A brand that just scorches the hair will not stay; when burned too deep it makes a sore; but when left on the hide until just the right stage of cherry redness is reached the scab peels off nicely and leaves a clean, permanent mark.

The hot iron is dipped into a kettle of beef tallow after each branding to keep it clean.

The whole branding job is done so quickly the calf is up and away before it hardly knows what has happened. Practically no bleeding and absolutely no cruelty. After it is over the calves do not appear to know anything has happened to them.

After the calves are branded the cows are vaccinated for anthrax—run through a chute and "shot" with serum and virus with hypodermic syringe. Thus two jobs are done with one "working" of the cattle.

There is no running cattle around and roping and throwing just for the fun of the thing. No Wild West shows are seen on the Antelope ranch.

When an animal is quietly eating good feed and resting without worry it is making meat—and that is the only time it is making money for its owner.

By means of anthrax vaccination losses have been reduced to less than one per cent. At one time the losses from this disease were very heavy in the region south of Reno. In 1923 at the Point ranch in Bridgeport (one of the divisions of the Antelope) out of 3940 cattle 26 died from anthrax.

Losses from blackleg also are very light. When the calves are weaned they are vaccinated against this ailment.

One important thing that Petrie is very particular about is to keep the various kinds of stock, both sheep and cattle carefully classified in the fields. On some ranches you see all kinds of stock grazing together—steers, cows, calves, young heifers—all kinds and ages. This is not good business.

When a lot of yearling steers or yearling heifers or cows and calves—or older steers ready for beef—feed together on a particular range or field they all get the same chance. Once this classification is worked out on a ranch in some sort of order it is easy to keep the various kinds separated.

The best plan for irrigating beef pastures is frequent application of water, with intervals to dry out and sweeten up the soil and to give the hardier and more nutritious grasses a chance to grow. Some drainage in the "soggiest" places has been found profitable.

A very superior quality of alfalfa is grown. There are two cuttings, yielding 2 to 2½ tons the first and 1½ tons the second.

"I don't claim to be a real Southern California booster," confessed Art Plumer, "but I have fed lots of hay in Nebraska and Colorado, where they claim to raise splendid hay, yet Antelope Valley alfalfa will do stock five times as much good as any other hay I ever fed. It puts on fat as fast or faster than most hay will when grain also is fed."

Indians, Piute and Washoe, do most of the irrigating. They are splendid workmen and some men have handled water on the same fields for many years. They go away in the fall and come back in the spring.

Other ranch jobs are similarly handled. One man has ground all the mower sickles for forty-three seasons. The sickles all are ground by water power. One man sharpens enough for cutting 20 000 acres of alfalfa. There are 21,000 acres of irrigated pasture.

Hay is put in the stack for $4 per ton. Before haying starts all machinery and equipment is put in first class condition. Much of it is made and all of it is repaired and sometimes remade in the ranch machine shop.

Every winter a harnessmaker comes and puts all the harness and "gear" in good shape for the season.

There is an ice plant on the place and all the meat used at the various headquarters and camps is slaughtered on the place. A garden at the home camp also supplies vegetables and fruit for all the "messes" and a dairy furnishes the milk and butter.

The cattle on most of the Union holdings are a Shorthorn-Hereford cross: A good, red straight-backed, heavy-milking Shorthorn base topped with thick-meated Herefords.

Each spring the cattle are dipped in lime-sulphur solution to loosen up the old hair, kill lice and vermin and sort of "slick them up" before they are turned out to grass.

In 3 hours and 25 minutes 1210 steers were dipped in a modern vat.

Bulls were turned out with the cows in June. Four bulls are allotted to each 100 cows—three young, active bulls and one older one. All the bulls were in strong, vigorous full-fleshed condition, having been kept on good feed all winter and spring.

Dehorning is a universal practice at all the ranches, bulls being the only exception. The older cows all have been dehorned. The younger cattle have their horns cut when they are yearlings. A butcher's saw or a dehorning saw is used for the job, the horns being cut with an upward slant just under the edge of the hair.

"Why don't you use caustic or dig the 'buttons' out with [illegible]"

"Takes too much time," he explained. "You can't do a clean job on all of them. Our way works out the best, everything considered."

Complete but not cumbersome records are kept of all operations. Petrie knows what the labor cost and every other cost on each ranch is each month and how it compares with the same month each preceding year. Feeding records are kept and nothing is left to guess work.

All but two of the properties can be reached by telephone, which is a great convenience. Petrie, however, insists that every man in charge of an outfit be held responsible for details and results.

It is a marvel to the observer that such a large enterprise, covering so much territory, can be handled so smoothly and efficiently. The Union system and the way it is carried out reflect the splendid ability and personality of the general manager.

Top picture—Harry Petrie, ranch manager, who has 100,000 cattle and sheep to look after. The man on horseback is Adriano Gonzoles, expert roper. The other views show Petrie in action at a at a calf branding demonstration.

Scientific Grape Growing Methods in San Joaquin

Detailed Description of Highly Successful System Employed by Progressive Valley Grower

By A. E. IMBLER

UNDER drouthy conditions all the higher forms of plant life exert the power to mature seed or fruit, which regenerates the plant. The grapevine stores up enough reserve food in its foliage to send out a short cane and a fruit form, or blossom, with the assistance of but little moisture.

After this time, if moisture is still deficient, the vine sets about maturing or ripening this new cane, even though the growth may be very short. The power of the vine is withheld from the blossom stem. The latter withers and falls off. The leaves do not wilt, but ripen in the same manner as in the fall. Being in this stage they are able to feed and properly ripen the new cane. This may happen early in June, the leaves going through all the stages of ripening to a golden color and falling off, if no further moisture is available.

Thus we have a small amount of fully matured wood, but no fruit. If we withhold moisture the vine will go on through the remaining summer months into fall without further injury to the vine, in the same manner that an onion bulb ripens when moisture is insufficient for normal growth.

Many other plants and trees in case of drouth or other injury throw their power to maturing seed and the plant or tree withers and dies if the drouth is severe enough.

Thus we see that with a very small amount of moisture a grape vine would perpetuate itself from year to year, but would no fruit, all its power being taken to ripen a limited quantity of wood. The vine matures its wood first then its fruit, therefore, the more moisture the more the wood and fruit, up to the point where the vine reaches a balanced condition; just enough wood and just enough fruit, which is determined by the vitality and vigor of each individual vine.

What we want of a grape vine is properly matured fruit. To get this we must by pruning irrigation and cultivation mature both wood and fruit as near to this balanced condition as possible. Growing the wood of a vine is not much different from growing any other perennial plant. Soil in a good state of tilth is the first requirement. A good, healthy rooted vine grows from a well selected cutting or piece of cane, not too vigorous or of coarse growth, but rather a cane that is round and short between joints. The cutting nearest the base is generally the best one.

Plant this just deep enough to prevent any new roots starting at the bud above the roots already growing. Do not tamp the earth too firmly around the young vine, but after planting pack the soil by running water around the plant.

Water and cultivate often. Keep the earth very moist during the early part of the growing season. Use a little less water later in the season, allowing the wood to grow slower and harden before frost occurs in the fall.

SHAPING FRUITING VINE

A similar method of culture may be practiced the second season, except the number of canes should be regulated by keeping all shoots not wanted broken off. The numbers of canes a vine at this age can mature varies from one to four. These canes should be distributed on all sides of the trunk. No two canes should be allowed to come from one bud. The height above the ground makes no difference. The first cane can be four inches from the ground; the next from the next higher bud if it happens to be a good strong shoot. I have seen as many as four well developed canes the second summer that could be kept for fruiting, three to four feet long, although this is not usual.

By the end of the second growing season there should be enough cane growth to make the framework of a bearing vine. At this point we are ready to turn our attention to fruit. The method of intensive cultivation and watering which has produced wood if continued year after year, would grow too much wood and not enough fruit; therefore, we change our methods and try not to grow so much wood, or to grow the wood more slowly. Slow growth makes firmer wood which is better fruit wood than fast growing, coarse wood.

To do this we do not irrigate or cultivate in the early spring, but allow the vine to come nearly to a standstill after it makes its first start in the spring. We like this check in growth to happen about blooming time and for two reasons: First, it very materially aids in the setting of the fruit or prevents too much shedding of fruit; second, it helps to set or harden this portion of the new wood early in the season, which is to be our next year's fruit wood. It prepares this portion of the wood for storage of plant food early, thereby making it the stronger portion of the new cane.

Immediately after getting our vines to check their growth we irrigate and cultivate, then follow by another irrigation. Keep this up at close enough intervals not to allow your vine to stop growing again until the fruit is ready to harvest. After harvesting the fruit we usually irrigate again. This time care should be taken not to start a new growth, but enough moisture should be maintained in the ground to keep the leaves on the vines. These leaves should be a silvery or gray-to-golden color. In this stage they are mature and best able to store up plant food for the coming year.

If the leaves are green and growing at this time of the year they have more of an emptying or exhausting effect on the vine. In fact, I think this period—from harvest to frost—is the hardest through which properly to guide a vine. One has to judge by the prevailing weather at this time. An irrigation followed by a few hot days is apt to start a vine growing. A small growth on the tip of the canes does no harm, but sometimes a vine sends out new leaves at the base of the old leaves. This has a very damaging effect, as it leaves the vine empty for a start in the spring.

Typical Heavy Bearing Vine on the Imbler Ranch.

In order to help carry vines through a partial drought in the spring we irrigate rather heavy during the winter or dormant season, usually in January and February. Irrigation, especially from pumps, warms up the ground; but if done too late may start the vines growing prematurely. Care should be taken to irrigate early enough to allow the ground to cool off before the sun warms the ground toward spring. Little or no irrigation or cultivation in the early spring is an aid to frost prevention, in districts where frost is likely to damage the young shoots.

SUBSOIL DURING DORMANCY

We also do our plowing and subsoiling during the dormant season. This keeps the ground loosened up after a summer's irrigation and cultivation.

There are a number of ways to assist the vine in attaining a balanced condition, the one that brings choicest fruit, together with the best wood for the next crop. The advantage gained by proper irrigation and cultivation easily can be lost by improper pruning. Too much wood left on a vine, even with all the water one can apply, is apt to weaken a vine. In this case a vine partially matures much fruit and but little wood. A vine in this condition is thrown out of balance. The next season this vine has little or no fruit wood, most buds being sterile. The result is a vigorous growth of wood, with but little fruit and that of inferior quality. This throws a vine to alternate years of fruit and wood, neither being what we would like.

Too little wood left on a vine usually means not enough fruit to hold the wood growth in check, resulting in little fruit and much coarse or second-grade wood, providing the vine has been watered normally. If a vine has had too much wood pruned off it can be kept in a balanced condition by reducing the amount of water making the wood growth slower and of smaller amount. What we should aim to do is to let a vine grow and bear to its maximum capacity, under normal conditions. This we try to accomplish by leaving more or less wood on a vine, according to its vigor.

A Thompson seedless vine when old enough to bear—say two or three years old—usually has three good canes out of four. We keep the three cutting them off at a point as far out as the wood is hard and the pith small, trimming all others off close to the trunk so the scar will heal over. Prune all laterals off these canes, but not very close to the cane in order to avoid injuring the bud at the base of the lateral. This particular bud produces fruit more frequently than any other bud, quite often sending out two shoots and in some cases each shoot will bear two bunches of grapes.

METHOD OF TYING CANES

Having previously put in stakes and wires, we now are ready to tie up this vine. The usual way is to bring the canes up to the first wire, then extend them each way from the stake along the wire, tying them in about two places. Place two canes on one side and one on the other, or two on each side if there are four canes. This method of tying up vines is a very good way where a vine is not able to support more than four canes and where the canes are removed annually.

I find, however, that many vines—in fact, almost all vines are able to support more than four canes. Such being the case we use a different method, so as to distribute the [illegible] over more space. This is done by picking out the shortest cane first and bending it outward from the stake in bow shape bringing the end of the cane near the stake at the top wire. Place the cane against the wire bending it over the wire and bringing the end back under the wire. In this position slide the cane up to the stake leaving the end of the cane resting against the stake. This makes a good fastening without a twist in the cane, no string being necessary.

The next longest cane is handled in the same way, leaving the end of the second cane rest against the first cane. The third cane is then put up, if a vine has three on each side of the stake. In some cases I have put up as many as ten canes, five on each side. These canes should be cut a little longer or shorter, so as to keep them spaced from 8 to 12 inches apart.

The advantages of this way of putting up a Thompson seedless vine are: Wider distribution of wood and the bent shape they are in making it easy to apply sulphur to all parts of the vine. A bent vine usually sends out its new shoots more evenly than one in a vertical position.

WHEN TO APPLY SULPHUR

Next in order after pruning and tying up the cane is a thorough application of sulphur to both sides of the vine. This should be done when the new shoots are from two to four [illegible] long, repeating the sulphur application in about six days. This, if thoroughly done, will be a great aid in keeping mildew off of your [illegible]. Sulphur should be applied after [illegible] irrigation or rain as mildew spreads [illegible] readily in moist, warm air.

When the new shoots are from 2 to 4 inches long I go over my vines and pinch off the tip end of each [illegible] merely the tip—one-quarter [illegible] sufficient. By this means the new [illegible] caused to throw out a lateral [illegible] times one at each leaf. Th[illegible] many more leaves to help the [illegible] grapes and also helps to [illegible] for next year's wood.

These shoots, or new canes we have pinched do not grow so long, [illegible] out laterals instead of long [illegible] canes, the select canes should [illegible] from one to two feet long. Th[illegible] then kept for the next [illegible] pruning them off from 8 to 16 [illegible] long leaving the original cane [illegible].

These pinched canes are thick[illegible] diameter, have shorter internodes [illegible] buds are stronger—mostly double [illegible] and nearly every bud is fruitful [illegible] ducing shoots that bear fruit. [illegible] the third year after tying up the [illegible] some of them begin to f[illegible] finish up good wood. Th[illegible] usually have sent out a [illegible] cane somewhere [illegible] usually low down on the [illegible] then cut the old [illegible] and tie up the new [illegible]. Th[illegible] new themselves each year [illegible] of the old ones [illegible] way [illegible] one taking its place.

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New Selling System Brings Buyers to California

[Editor's Note: ORCHARD and FARM has given considerable space to the f.o.b. cash auction because of the widespread interest in this new system. Several prominent authorities have pointed out what they believe to be the defects of the method. What its supporters have to say in its favor also is presented, in order to enable readers to form an impartial judgment of the matter.]

F. O. B. Cash Auction Company Receives Bids in Los Angeles for Produce While Cars Roll East

THE Growers and Shippers' F.O.B. Auction Company, recently organized, has been doing a big business in Imperial Valley cantaloupes and expects to handle a large volume of grapes and other fruits during the remainder of the year.

L. K. Small, president and manager of the new concern, has had long experience in marketing California fruits and products. He always has favored f.o.b. sales and ten years ago assisted in establishing an f.o.b. auction market in Los Angeles. It failed, he explains, because then there was no Government inspection and samples submitted were not always a fair indication of what cars contained.

By means of Government inspection and a private leased wire this difficulty has been overcome. Buyers in all the principal markets of the United States bid on cars the day after they are started rolling from the Pacific Coast, being informed by inspection reports regarding shipment. This largely eliminates buyer's risk, while growers are relieved of all responsibility after their goods have been "knocked down" to the highest bidder. Purchase price at once is wired to the California office and check mailed to grower immediately.

Small takes exception to some of the criticisms of f. o. b. auction marketing, especially the one which claims that this system interferes with wide and proper distribution.

"Yesterday we sold 40 cars of cantaloupes," he related. "These melons went to 22 markets in 11 States. If any other selling organization can show a better record than that I should like to see their figures. It stands to reason that the best cash bids will come from those points most in need of the product being offered for sale, or from their representatives in the big markets, who act as buying agents.

"It is claimed that the best distribution can be obtained by a California organization keeping in touch with all the Eastern markets. Also that our system releases products to unorganized speculators, who are apt to glut markets already oversupplied.

Eastern dealers are better acquainted with market wants than any Western organization. These dealers are not going to put their money in a car of fruit or vegetables unless they know where they can sell it to advantage."

With reference to the admission that the new selling system might work well on a rising market, but that buyers would leave growers "in the lurch" when the market was oversupplied and the market dropping, Small remarked:

"A month ago, when the cantaloupe market was the lowest in years, melons were selling in New York for $2.75 per crate which netted growers 97 cents. On the same day we made sales at $1.17 to $[illegible], which netted growers $1.07 to $1.[illegible]. The figures speak for themselves.

"Why did buyers pay more than the market price? Because they expected by the time their purchases arrived the market would be in better shape."

Imperial Valley cantaloupe growers have no organization and it is considered [illegible] practical to form one because [illegible]. The crop is an annual, [illegible] grown on rented land and the [illegible] lacks the permanency necessary for co-operative marketing. Dealers [illegible] finance growers who are unable to obtain bank credit.

In this case the melons are packed [illegible] by the dealer, who employs [illegible] or trademark. This mark be[illegible] known to the trade and enables [illegible] to bid [illegible] by wire as [illegible] Government inspection report [illegible]. Private growers [illegible] the method [illegible]

[illegible] 'cants' [illegible] per cent being sold for cash in the valley. Those which were sold at f.o.b. auction one day in June, after the market had recovered, brought an average of 12 cents a crate more than cash sales in the valley on the same day.

Here is a sample description of a car of cantaloupes, telegraphed to prospective Eastern buyers:

"Lot No. 2.-PFE 27,405. El Centro, May 31, 1924. Chicago. S.P.R.R. Standard Refrigeration. Account Eagle Packing Co. One crate jumbo cantaloupes, 228 standard, 80 pony, 19 flat; 22 standard crates honeydews, three jumbos. Victor brand. G. S. I.

"Pack tight. Size slightly irregular in standards and ponies. Cantaloupes mature, firm and well netted, half to full slip, mostly half slip. Color green to turning yellow. Minimum sugar test 10 per cent. Honeydews not inspected. Unger, inspector."

F. o. b. prices received for this car were $2.35, $2.10, $1.05 and 84 cents for the cantaloupes and $2.50 for the honeydews.

A leased wire service is maintained with New York, Pittsburg, Boston, Detroit, Chicago and Philadelphia. The market opens at 10 o'clock each morning, bids being recorded on a large blackboard as soon as received. Sometimes a dozen or more bids will be received for a single car, from a half dozen cities. By noon, all the stock is sold, usually 40 to 80 cars. Last year the National sold 140 cars of grapes in a single day.

H. D. Webb, a Santa Rosa dealer who has joined the new Los Angeles auction company, reports great dissatisfaction among Sonoma County growers with present selling systems, especially consigning to commission men. It is a common practice, he asserts, for dealers to advance large sums to grape growers in the beginning of the season, taking a mortgage on the crop, which they sell, often at prices which leaves the grower in debt to them.

Advances of money succeeding years puts the grower more deeply in debt, the result sometimes being that the dealer takes over the vineyard, leaving the grower to meditate over the terms, "credit" and "consignment."

Other members of the Growers and Shippers are E. V. Kelley and W. J. Simpson, Fresno; U. G. Border, New York; J. S. Arena, A. E. Barker and T. H. Peppers, Los Angeles. Each member purchased at least $1000 worth of preferred stock. At the end of each year one-half the net profits—if there are any—will be paid to the members in proportion to the volume of business transacted with the company. The remainder of the money will be placed in a sinking fund, which will be used to make improvements or expand the business.

Small always has made it a point, whenever possible, to sell for cash f.o.b. Of the 427 cars of grapes which he sold last year, 321 were f.o.b. cash sales, 57 Eastern auction and 49 delivered sales. In nearly every case the f.o.b. prices were the highest. For example muscats brought an average of $48.69 per ton while auction and delivered sales were at $35.53 and $29.99, respectively.

A good example of the way consigning to distant markets operates is afforded by the experience of wine grape shippers in 1922. When the trade in this product was established a few years ago Small began doing business on the basis of requiring a deposit of $200 per car with order, balance payable when the fruit was shipped.

This plan was adopted by other shippers and gave general satisfaction until some consignment sales were made at abnormally high prices. As a result, thousands of cars were consigned, which gave dealers the whip hand. Taking advantage of the situation they bought several hundred cars at prices which netted growers nothing but red ink. This is a common experience in price-on-arrival shipping, while f. o. b. sales always net real money and if prices are unsatisfactory shipments can be discontinued until the market recovers.

Marking up bids in a Los Angeles f. o. b. cash auction market, as Eastern dealers' offers are received by leased wire.

As Small points out, shippers who consign to a distant market when prices are low and demand weak are apt to receive nothing but red ink, while f. o. b. shippers take less chances and always get real money, yet it is on this kind of a market that the latter system is said to make the poorest showing.

Critics complain that f. o. b. cash auction buyers speculate with their purchases, diverting them to any market they choose. Speculators also have an opportunity to divert cars purchased in the Eastern markets and often take advantage of it to reship the same car several times. Small described this abuse in a statement about "tramp cars," which former State Market Director Weinstock incorporated in one of his reports to the Governor.

"Theoretically," explains Small, "the manager of a big co-operative marketing association keeps in touch with all the main markets and ships to those where demand and prices are the strongest. In practice, he does nothing of the kind, merely collecting and giving out information and acting in an advisory capacity to growers. The latter have the right to ship when and where they please.

"Do they exercise that right? I'll say they do! Dezell strongly advised Sunkist growers not to ship 372 cars of Valencia oranges today and thus flood an already overstocked market, but the oranges went forward just the same.

"What co-operatives need in market is a czar, a dictator who has supreme authority in (Continued on Page 8)

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CASH BUYERS want Western farms. Describe and state lowest price. R. A. McNOWN, 367 Wilkinson Bldg., Omaha, Neb.

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Pullet Growers' Ten Commandments

SEGREGATION—Pullets must be separated from cockerels and large and small birds separated. This will prevent many a scrub.

Congestion—Taking the thousand-chick brooding pen as a unit, not more than 400 pullets should be allowed to grow eight weeks in such a pen. At three months pullets must be put into their regular future laying quarters or placed on range until they commence to lay. This is one time in the life of poultry when crowding will leave its mark.

Ventilation—Pullets must be on the roosts at this time and these roosts should now be raised and thereby moved out of the contaminated floor atmosphere. Do not let your pullets lie around on the so-called chick mattress. Open your house more each day, until at the age of eight weeks your pullets are sleeping in the back of an open-front house.

Sanitation—Water fountains must be washed and disinfected daily. Floors should be cleaned at least twice a week, up to the eighth week, and then once a week. A cleaning every day would be almost positive control of 90 per cent of pullet troubles.

Feeding—Grain ration for pullets should always have a large percentage of yellow cracked corn. Fifty per cent is not too much. Grain should be fed both morning and evening, as much as will be cleaned up in one hour's time. Grain should be fed in deep litter.

A well-balanced growing mash should be fed dry from 10 to 2 o'clock, up to eight weeks of age, and then increased to from 8 o'clock to 2 o'clock. Feeding dry mash all day is apt to cause loss of sufficient appetite for the hard grains. Always see that pullets eat plenty of hard grains. If possible, one to two hours' feeding of sour milk, either from creamery or the commercial, should be fed daily up to three months of age.

Green Feed—If you can not obtain sufficient green feed for all your poultry you have no right to be in the poultry business. You are piling up grief for yourself and are a detriment to our industry.

Worms—Probably the worst and most insidious enemy we have in our industry is the round worm. Especially is this true in young stock, for one worm practically doubles proper development. Today we can expect to find worm infestation on all our premises and therefore we must get in the habit of giving regular treatment.

It is to be regretted that at the present time we have no positive treatment for expelling or destroying the round worm, but the best we can do is to use as reliable a treatment as we know of and take our chances. At times these work out 100 per cent perfect but not always, and therefore do not make the mistake of assuming that you have no worms in your flock just because you used tobacco or some one's worm cure.

Keep after them, for you must absolutely get rid of worms in growing stock. Treat at eight weeks, twelve weeks and sixteen weeks, even if you don't find evidence of worms.

Coccidiosis—Where the above cures are given you should have very little trouble from this disease. Should you get an infection of coccidium, go after them with straight grain feeding and sour milk, no water, no mash and positively clean your floors every day for at least ten days.

Colds—These are entirely due to worms, crowding, lack of fresh air and unsanitary conditions.

Vermin—Be sure to inspect your roosting quarters for mites and whenever you have hold of one of your pullets give it the once over for vermin on the body, although there is little danger you will find such on an active, growing animal.—MAX KORTUM in Nulaid News.

Fattening Broilers

RICHARD METZLER, Corning, inquires concerning figs as poultry feed, also about fattening broilers. I am unable to find any record where the digestibility of figs has been determined for poultry. Our chickens run under the fig trees and seem to relish the black figs and I cannot see that it affects them for the worse. It may be a good food for them.

For fattening broilers the best way is in a "battery," which is made so that ten or twelve chickens will be shut up in a space about 34 by 20 by 13 inches. The chickens in such a battery should be fed no hard or dry grain. Ground feed is mixed with buttermilk or sour skim milk, using twice the weight of milk as of grain. This makes a thin mash, like cream.

This is fed three times a day, and they will clean up in half an hour, never feeding unless they are hungry. No green feed or water is given. The first week they should be given equal parts of ground corn, millrun and ground barley or oats, but the last week the ground corn should be increased to half of the entire feed.

If you are not feeding in such close confinement or in a pen where the chickens receive exercise to aid in the food digesting, then keep the dry mash before them all the time and in the evening give them a feed of half corn and half wheat. They should also be given milk or buttermilk all the time and a feeding of greens once a day—alfalfa, clover, kale, cabbage or something similar.—W. J. DRYDEN.

New Selling System

(Continued From Page Seven)

selling. Then he could control shipments and handle them to the best advantage."

Small thinks the big co-operatives should establish f. o. b. cash markets of their own. He is firmly convinced, by long experience and observation, that the best way to sell California products is to bring buyers to the Coast, either in person, by post or wire, forcing them to do business with growers and shippers on an f. o. b. basis.

The California Prune and Apricot Growers' Association recently was advised by the California Walnut Growers' marketing expert to make all their sales at this end of the line, according to Small.

It is considered impractical to permit bidding from more than eight markets at one auction, because of the time necessary to receive bids. Subsidiary markets send orders to the principal buying and selling centers, which bid for the cars rolling in their direction.

JAPS LIKE OUR ORANGES

California oranges sell for 30 cents each in Japan and a drink of orange juice 35 cents. Ginza Sembikiya, Tokio merchant, recently has installed a Sunkist citrus juice extractor and expects to transact a profitable business in fruit beverages.

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Bee Notes

By J. D. BIXBY SR.

HONEY CROP WILL BE LIGHT—Six and one-half million pounds is the normal yield of California honey. The 1924 crop is estimated at 25 per cent.

J. D. BIXBY SR.

The largest honey crop California has produced in late years was in 1920—9,700,000 pounds. The present is the third successive short crop. Northern as well as Southern California has suffered greatly from heat and drouth.

The carryover of honey from last season is practically well cleaned up. It took two years to sell the big crop of 1920, the exchange having to carry over 130 cars. By so doing the market was saved from complete collapse.

Arizona also will have a light crop of honey this season, while the intermountain States—Idaho, Utah, Colorado and Wyoming—will have good crops. Their source of honey is alfalfa, sweet clover and white clover.

CATNIP IN CALIFORNIA—Catnip is one of the most valuable honey plants east of the Rockies. There is none on the Pacific Coast. I have had several sharp arguments with "transderfoot" beekeepers who claimed they had seen catnip here, but in every case it was only common hoarhound.

Catnip has the peculiarity of being very abundant for a season or two and then disappearing for a number of years, probably because of a long period being required to germinate the seed. Hundreds of acres have been sown in Nebraska as an experiment in honey production, but with unsatisfactory results.

Colorado bees mountain bees love catnip. This method is very useful in capturing bee cats.

What has this to do with beekeeping? Our State experiment station has a "Nepeta" catnip, which it distributes as a garden and flowering plant. My wife planted three of them and they started nicely. Then one morning one was found badly torn up. The next morning another plant was wallowed down.

Tufts of white hair set a strong suspicion on the family cat. The nepeta surely is a catnip. It is now growing with a chevaux-de-frise of sharpened pegs about it.

INCREASE BEES BY DIVIDING—Now is a good time to increase by division, providing you have a good honey flow in sight; otherwise better not take the chances. The colony will need a great amount of pollen and honey to breed up and make ready for winter—more than they are likely to find under present drouthy conditions.

In dividing for increase save time by removing from the old colony the bulk of the brood, with the bees adhering to the combs. Placing the new hive in a new place, paying no attention to the whereabouts of the queen. Three days later you can tell which hive she is in by the presence of eggs in the cells.

Unless conditions are very favorable better not make more than two divisions per colony. It will be well worth if you have a young queen reared in each nucleus.

For the bees in the nucleus to rear a queen from the egg to laying consumes at least three weeks of valuable time, during which the colony loses many bees.

Many times it is best to kill the old queen in dividing, so that you may leave her on the old stand with most bees. Old bees are often antagonistic to a young queen and will kill her at once, while young bees of a colony will accept any kind of a queen readily.

HANDLE FIRE CAREFULLY—Be extremely careful about fire in the apiary these dry, hot months. If a bee smoker is new and the grass dry, better cut a small piece of [illegible] and put inside the smoker to prevent sparks blowing out.

When the smoker is [illegible] dampen a piece of burlap and place on top of the fuel. Have a bucket of water can in which to dump the fire from the smoker. See that it is extinguished before you leave the apiary. If you smoke tobacco drop your pipe or bottle in the same way.

You cannot be too careful. If you started a grass fire in a forest [illegible] by a match [illegible] strack it.

Palm Covered Barn

No, this is not a scene from the tropics, but a palm leaf barn in Tulare County. R. W. Tomlinson is the architect and builder and he is so pleased with results that he plans to build this fall on the ranch he is moving to a palm leaf shed over his pumping plant, and another and larger palm leaf barn.

This barn is 20 by 30 feet and about seven feet high at the eaves. It was built a year ago and the shed, of which a corner of the roof can be seen in the photo, was constructed three years ago. Tomlinson thinks that the palm part of such a structure will last ten or fifteen years.

The wood for the frame part of the barn cost $50. Rough timber was used for uprights; 3x4s for plates, 2x4s for rafters and 1x4s for sheeting. The sheeting for roof was put on 12 inches from center to center, and that on the walls 18 inches. The leaves are nailed by the stems. They overlap like shingles, the center of a leaf coming directly over the joint between the two leaves below it.

Good sized palm leaves are best. These average approximately four feet of leaf, not counting the stem portion, and the way they are put on gives four layers of leaf on the sides and

considerably more on the roof. The walls and roof are absolutely rain-proof and are everything else they ought to be. It took three truck loads of leaves to cover walls and roof.

The leaves were secured for the cutting and hauling. One man, says Tomlinson, can cut three loads of leaves in a day. A few leaves were cut in June, the remainder late in November, just about the time palm trees ought to be pruned.

Palm leaves ought to be green when cut, but if nailed up too green they are likely to split. If dried out too much they also are likely to be brittle, but are tough when only wilted. Let the leaves cure in piles about a week.

It always is cooler under the roof of this barn than under an ordinary shed. The photograph was taken from the southwest. The north side is open. This barn is located a quarter of a mile off the State highway leading to Sequoia National Forest. Travelers see and admire the structure, which is more than picturesque. It is cheap, very durable, cool in summer and water-tight in winter. It looks primitive but is about everything a barn should be.—TULARE FARMER.

Red Spiders a Problem

HARRY WILLIAMS, manager of the Burton & Moody orchard at Butte City has one of the worst "red spider" situations in this part of the country to fight but in spite of that has had the best success of any one around here in controlling it.

There is a road on two sides of one part of this orchard—a much traveled and very dusty road. "Spiders" or mites thrive on hot weather and dusty leaves.

"Get at them early," is Harry's slogan. "I can keep spiders in check all right if I can get started to spraying before the infestation becomes too bad," he says.

After the mites have taken all the [illegible] out of the leaves it does not do much good to kill them, because the leaves are of no value then and are pretty sure to fall off anyway. Any one who has ever done much spraying knows that it is impossible thoroughly to cover a tree with spray material—especially when the tree is in full leaf [illegible] that there are always plenty of [illegible] left for seed.

"After we start spraying, the work [illegible] tually a continuous operation [illegible] the part of the orchard near the [illegible] where the worst infestation oc- [illegible] But if we keep at it we hold the [illegible] in check and harvest the fruit. [illegible] the thorough spraying of [illegible] tion of the orchard was started [illegible] lost both fruit and leaves [illegible] the summer.

[illegible] barium tetrasulphide pow- [illegible] spiders and mites at the rate [illegible] pounds to the 200-gallon tank. [illegible] the adult [illegible] by contact [illegible] fumes of sulphur liberated [illegible] kill the young as [illegible] from the eggs. In apply- [illegible] you need a good outfit [illegible] pressure."— [illegible]

Agricultural Leaders of the Pacific West

J. L. NAGLE

General Manager California Fruit Exchange, Sacramento

INDICATIVE of the personality and ability of the man is the fact that J. L. Nagle has held his office as general manager of California's great fresh fruit co-operative probably longer than any association official in the State.

He has been connected with the organization since 1902, first as manager of the Newcastle Fruit Growers' Association, a local, then as vice president of the exchange, next as president and finally as general manager, which office he has retained since 1909.

J. L. NAGLE

Mr. Nagle is a private fruit grower of extensive interests, owning several orchard properties which are maintained in the highest state of productivity. Also he is a director of the California National Bank and the Western Pacific Railroad. He started in the fruit business in 1902, when he purchased a small Placer County ranch, and has fought his way to the top by sheer force of ability and energy.

His tenacity of purpose has stood him in good stead in his leadership of the growers, now numbering more than 6500, who are affiliated with the organization.

MET EARLY OPPOSITION

Especially in the early days of the California Fruit Exchange when the organization was subjected to every conceivable attack from the outside, he was a tower of strength to the growing organization. The type of competition which had to be met prior to 1919 was much sharper and in many cases decidedly more questionable than at the present time.

In those days and before the present well regulated commercial companies with fair up-to-date methods were well established, every type of competition was resorted to in order to defeat the exchange. Ranches were leased, all types of rebates were employed, and even shook and materials were given away in order to secure tonnage.

Another important factor in Mr. Nagle's success as a co-operative leader is his organization ability, which has enabled him to build up a loyal, smooth-working organization. His plan is to select the right man for each job and then give him a full measure of responsibility.

That a marketing organization must "stand upon its own legs" by means of service delivered to the members is Nagel's idea of a sound policy. Any such organization which cannot compete with other agencies in efficiency and achievement has no right to exist, he contends, and cannot be kept alive by artificial restoratives.

A BUSINESS ORGANIZATION

Getting the most possible money for the fruit at the lowest possible expense is the real function of any marketing association, he points out. Aside from honesty and square dealing, other factors are comparatively unimportant.

No alliances have been made with competitors which would in any way affect the business and the organization has moved ahead under his management, unaided except from within, in the conviction that co-operation is not only right in principle but in fact.

Mr. Nagle is a great lover of horses and dogs and his hobby is horseback riding. As a matter of fact he cannot bear to see a dumb animal in distress, and as a result his ranch is a regular haven of retreat for a miscellaneous assortment of dogs, all of which he claims have pedigrees. On the other hand he has some splendid stock of both horses and dogs and enjoys them immensely when able to get away from the office.

Soil Improvement Paves Way to Success

(Continued From Page Two)

decaying organic material and proper mechanical reactions of the soil. Since the majority of bacteria are found in the top six inches of soil it is evident that best results cannot be secured by constantly stirring the ground during the growing season.

"Organic material and nitrogen accumulate in soil permitted to return to virgin state. These constructive processes only manifest themselves in soil permanently covered with vegetation, therefore we should supply this condition as closely as possible by growing cover crops."

"All the cultivation necessary is what is needed to incorporate vegetation in the top six inches of soil. We use a tractor only 50 hours a year on 13 acres of old orchard."

Well, what is the condition of this soil and how does it produce? Although no animal manure, hay, straw or other organic material has been added to it for more than 40 years, it is in remarkably fine shape: very loose and porous, with that peculiarly pleasant odor characteristic of rich, virgin soil. Samples taken at various depths before the work of improvement was begun show a striking contrast to samples recently removed from corresponding strata. Although some of the old foliage on the trees is not what it should be, the new leaves are as green and glossy as one could wish.

ORCHARD IS PROFITABLE

No, the crop—final test of all orchard methods—has not been forgotten, but the best has been left until the last. Eighty trees, 10 acres, average, year after year, about 400 boxes or one carload per acre. Farm Adviser Wilder says this is a better yield than is obtained from 93 per cent of California orange orchards.

During the past year these trees produced 146 tons of oranges, of which 85 per cent were 216's and larger. There was an unusually heavy loss from windfalls, the culls amounting to $5\frac{1}{2}$ pounds per box.

There is a real profit in raising oranges at the prices which in the past have prevailed, according to Thompson, when a grove is valued at its actual cost, $1000 to $1200 per acre. He figures a carload at 2 cents a pound will net the grower $600, of which $350 must be subtracted for production and harvesting expense. The past season he spent $4500 on 13 acres.

As for the groves priced at more than $2000 per acre, top price of intrinsic worth, the excess valuation may be considered watered stock. With reference to the orchards which do not show a profit, the fault lies either with the management or the fact that they were planted in unsuitable locations—or both, he maintains.

"Eastern capital is all that supports one-third of California's orange orchards," asserts Thompson. "A great many should never have been planted, because of unfavorable soil and climatic conditions. Growers who will not take proper care of their orchards and give intelligent attention to the packing and marketing of their fruit have only themselves to blame if they do not find the orange business profitable."

MANAGES PACKING HOUSES

Thompson has been growing oranges for 42 years. He "got his start" by grubbing brush at $1 a day, later picking and packing fruit on contract, thus learning the business literally "from the ground up." In 1894 he became manager of the Highland Fruit Exchange, which position he held for two years. For nine years he was manager of the Highland Orange Growers' Association.

In 1909 Thompson organized the Highland Exchange Association, of which he is manager. He also superintends the Highland Fruit Growers' Association, is a director of the Redlands-Highland Fruit Exchange and president of the Highland Chamber of Commerce, and takes an active part in many other community activities.

Last year Thompson obtained 30 cents a box more for the output of the two packing houses of which he is manager than the average price received by the California Fruit Growers' Exchange. His Priscilla brand sold in New York for $4.30 for 150's when Florida oranges of the same size brought only $3.75. He also packs the Highlander brand. A large share of the crop is sold f. o. b. to San Francisco and Vancouver dealers. The exchange plant this year packed 1000 tons of navels and about 750 tons of other varieties.

"When the size of the orange crop is considered," states this successful citriculturist, "and the amount of other competing fruit, also the vast acreage of young orange trees in Florida which are coming into bearing, it must be apparent that only efficient care of favorably located orchards will return owners a real profit."—O. H. BARNHILL.

Easy to Kill and Rid Your Place of Flies

Simple Home Prescription Works Like Magic—Not a Poison But Fatal to Insect Pests—Harmless to Stock.

Flies are, without doubt, the most dangerous and annoying pests with which the farmer has to contend. The loss in value of livestock and lowered milk production as well as the spreading of disease has made this menace the object of study by the world's greatest scientists.

Now, R. B. Grant, widely known chemist, has announced the perfection of a simple prescription, easily prepared at home, by which you can rid your house, barns and livestock of all these insect pests almost instantly and with no trouble at all. It is fatal to flies of all kinds and similar pests such as chiggers, mosquitoes and moths.

This new discovery, which is called "Fly-Kill" is not a poison. Though it kills insect pests like magic, farm animals and human beings are not affected by it at all. This prescription is so powerful as a repellent that flies will not come near stock or buildings where it has been used. Fly-Kill is particularly valuable for cows and horses as flies do untold harm to these animals.

So confident is Mr. Grant that his discovery will quickly rid your entire place of all insect pests that he offers to send any reader of this paper a full size $2.00 prescription for only $1. With this as a base you can mix at home enough Fly Kill to last an entire season and be free from these pests.

You need send no money—just your name and address to R. B. Grant, 3591 Mutual Bldg., Kansas City, Mo., and the prescription will be mailed at once. Mix it and use according to the simple directions. If at the end of thirty minutes you do not find the insect pests have vanished, the prescription costs you nothing. This offer is fully guaranteed.

200 Sheets and 100 Envelopes $1

3 lines printed with name and address, or Monogram in an exclusive design, in rich dark blue ink. On Good White Bond. Size 6x7, envelopes to match. 100 Correspondence Cards, printed, sixe 3½x6, with envelopes, $1.50. 100 Double Sheets and 100 envelopes, $1.50. Money refunded if not pleased. An ideal gift for friends. Write Plainly. 50 Paneled Cards with name, 50c. Additional lines, 15c each. Remit with order.

A. J. BAUMANN, Dept. B
268 Market St., San Francisco, Calif.

Remnant Sale

18 YDS $1.98

Big Bundle

Too good to be true? Yet we mean it! Great big 18-Yard Bundle for only $1.98 during this sale! Hurry! Hurry! You may be too late! This offer might be withdrawn any time. Contains such materials as Ginghams, Percales, Chambrays, Hollands, Voiles, Scrims, Toweling and Organdies—no piece less than 2 yards. Selection must be left to us. **Send No Money** Pay on arrival only $1.98 and postage. Satisfaction Guaranteed. We prepay postage if you send cash with order.

INTERNATIONAL MAIL ORDER CO.
Dept. K-2479, CHICAGO

MONEY IN GRAIN

$12.50 buys guarantee option on 10,000 bushels of wheat or corn. *No Further Risk.* A movement of 5c from option price gives you an opportunity to take $500; 4c, $400; 3c, $300, etc. WRITE TODAY FOR PARTICULARS and FREE MARKET LETTER.

Investors Daily Guide, S. W. Branch, Dept. M-39
1016 Baltimore Ave., Kansas City, Mo.

"I pay the Freight"

Red Top Steel Fence Posts and Farm Fencing

FREE FENCE Catalog

Harry Baylies

431 Pacific Finance Bldg. Los Angeles
427 Dalziel Bldg. Oakland

No Joke To Be Deaf

—Every Deaf Person Knows That. I make myself hear after being deaf for 25 years with my Artificial Ear Drums. I wear them day and night. They are perfectly comfortable. No one sees them. They stop head noises. Write me and I will tell you a true story how I became deaf and how I make you hear. Address Geo. P. Way Artificial Ear Drum Co. Inc., 282 Hofman Bldg. 2539 Woodward, Detroit, Mich.

PLEASE MENTION THIS PAPER WHEN YOU ANSWER ADVERTISEMENTS

Co-Operative Patriotism Needed in Marketing

New Conscience in Farmers' Organizations and Loyalty to Community Essential to Greatest Measure of Success

[The following radio talk by O. H. Barnhill, assistant editor of ORCHARD and FARM, was broadcast July 2 from the Los Angeles Examiner Station KFI.]

FOURTH of July "spell binders" soon will be shouting themselves hoarse in an effort to rouse the American people to a sense of their individual responsibility for good government.

To you, farmers of the Pacific West, I want to make a similar appeal in behalf of co-operative marketing—although I am neither a spell binder nor the kind that harvests grain. This selling system has proved the financial salvation of many a rural community, yet it is beset by foes within and without. More than one association is fighting with its back to the wall and is in danger of going down in defeat, as did two big Oregon marketing organizations recently.

Our business enemies—private dealers—are sniping on the side lines, using every unfavorable situation as a soft-nosed bullet to mushroom through growers and destroy confidence in mutual marketing. Exceptional prices secured on the outside are put out as decoys to tempt members from the safety of co-operative trenches into the dangerous no-man's land of grower competition.

MEMBERS ARE RESPONSIBLE

True, bad generalship has lost many a mutual selling battle. Unfortunately, inefficient officers are found in co-operatives as well as in Congress and State governments. But voters are not held blameless when oil leaks out of Teapot Dome, Congress fails to reduce taxes and in the Veteran's Bureau there is grafting that would disgust even a dishonest nurseryman.

We need a new conscience in co-operative marketing, just as we do in affairs of state. We ought to get away from the "Let George do it" attitude. That was a good motto when the father of his country was on the job, but nowadays there are too many inefficient Georges occupying places of trust and responsibility.

Our co-operative duty does not end when we buy stock, vote for a director and turn over our crop to the association. We ought to keep in constant touch with every activity of the organization and constantly inform ourselves regarding market conditions. Let us leave "buck passing" to goat herders and instead of blaming somebody else when anything goes wrong, do all we can to keep things straight and in good running order.

The way to have efficient, honest officials, both in civil governments and co-operative marketing, is to keep close tab on their work and let them know what we want done and why. The American Government is based on the principle that the greatest wisdom is found in the combined judgment of a majority of its citizens. Official acts are guided in theory if not always in practice by the expressed will of the people.

CLOSE CONTACT NECESSARY

It should be the same in a co-operative. It is not enough to elect a manager and board of directors and trust them to run things. All the policies of the association and every act of every official should be open to the scrutiny of all the members at all times.

At least one big co-operative recognizes the wisdom of carrying out this principle. The Sun Maid Raisin Growers employ one man for the sole purpose of keeping members in touch with the association and transmitting raisin-grower sentiment to Sun Maid officials. The latter realize the collective judgment of their members is the safest guide to official acts.

There are, of course, other reasons why this procedure is profitable. Members who keep in close touch with the activities of their association and have a thorough understanding of difficulties encountered and problems to be solved, make the best co-operators and are less liable to become dissatisfied and withdraw.

A good share of the troubles of this world are caused by misunderstandings. There should be none in a co-operative, because the members are bound together by close ties of community interests, since they all are producing and marketing one commodity, on which their livelihood depends.

PUBLIC SHARES BENEFITS

Not only should we take an active part in association affairs, but we ought to be loyal members, true to the co-operative trust. The old adage "A chain is no stronger than its weakest link," applies with peculiar force to an organization of this kind. Nothing more quickly will disrupt such a society than disloyal members who "scab on the outside" by selling a portion of their crop to private dealers and in other ways try to "put one over" on the management.

Those of you "listening in" on this talk who are not farmers should realize perfectly that co-operative marketing, rightly conducted, benefits not only the producer, but the general public, particularly the consumer. The central idea of this system is to fill all the channels of trade with a regular supply of dependable merchandise of uniform quality at reasonable prices, which vary little from one season to another. This prevents both market gluts and insufficient supplies, which result in abnormal price fluctuations and afford speculators a chance to make unreasonable profits at the expense of both producer and consumer.

Short-sighted members, however, sometimes forget this high motive and regard a mutual selling society as an agricultural combine, to be used for the purpose of holding up the public and forcing consumers to pay whatever prices farmers dictate. This mistaken idea more than once has led to disaster and ruin and came near wrecking one of the largest co-operatives in the country.

As Ralph Merritt, Sun Maid manager, points out, it is a grave mistake for farmers to set an arbitrary price on their products and attempt to force people to pay more than the market justifies. We should put a price on our goods that will move them, no matter how low the figure may be for nothing demoralizes a market more than a carry-over of the previous year's crop.

Farmers who would name a cost-plus price for their products and attempt to force the public to do business with them on that basis are going at the proposition from the wrong end, as E. G. Dezell, manager California Fruit Growers' Exchange, points out. It is true, of course, that people must eat to live and buy wool, cotton and flax with which to clothe themselves, but they cannot be forced to buy any particular kind or quantity of food and clothing material. Sugar speculators have learned to their sorrow that a consumer strike may be very effective.

DESERVES GENERAL SUPPORT

Instead of commanding the public to toe an imaginary price mark let us lead them by judicious advertising and the widest, evenest distribution of honestly packed goods of uniform grade to consume as much as possible of our products and pay good prices for them. Then let us increase our profits by economical production, regulating the quantity by the probable demand; also by an efficient system of packing and marketing, cutting transportation costs and eliminating unnecessary middlemen.

This is what co-operation accomplishes, or can be made to accomplish. Is it worthy of your support? If I could hear your collective reply I am sure it would be almost unanimously affirmative.

Non-members frequently admit that a co-operative has increased the demand for their crop, stabilized the market and delivered them from the clutches of private dealers, forcing the latter to pay association prices or better.

And yet, just because these growers believe they can obtain some slight temporary advantage by remaining non-members, they refuse to "come in out of the wet" place of unorganized agriculture. Is this good business ethics?

Is it fair to those who have labored and sacrificed to hold up a marketing system which benefits everybody, especially farmers, for some growers to refuse to come into the co-operative fold, remaining outside, where they are a constant menace to the organization—an irritating thorn in association flesh?

HONOR SYSTEMS PIONEERS

It is a well known fact that mutual selling societies are forced to hold an umbrella over outsiders, to protect them from dealers who would beat down prices, because only thus can control of the market be maintained. But for this service what does the non-member pay? Nothing at all!

The Pacific West, particularly our great State of California, is known as the American cradle of co-operative marketing. Here was written a declaration of Independence which proclaimed to tyrannical dealers that producers possess the inalienable right to organize for self-defense and mutual benefit. Here, on the western slope of the American continent, where human beings, plants and animals are reaching their highest development, agricultural co-operation has attained its greatest success and perfection.

As we celebrate the birthday of our country and honor the heroes of '76 who founded a nation upon the principles of freedom, justice and equality, then laid down their lives in its defence, let us also honor the pioneers of co-operative marketing, who labored so effectively in behalf of a more efficient selling system for the farmer.

SALE of Hand Beaded TUSSAH SILK DRESSES Price Cut to $3.79

For short time only these beautiful silk dresses offered at the amazing sale price of $3.79. Biggest bargain sensation in years! A bewitchingly beautiful new style Tussah Silk Mull Dress richly beaded and elegantly finished in every way. Be quick! They will go fast!

Send No Money with order

Richly made of fine quality Tussah Silk, soft and shimmering—an ideal material. A striking feature is the elaborate beading—pretty bugle beads in rich color tones set in a most tasteful and elegant design. Self material narrow sash. Fashionable kimono long sleeves with slashed cuffs. Round neck; tailoring throughout is perfect, you will be delighted with the workmanship. The style is one-piece, becoming to all ages and figures.

Money Back Guaranteed

HURRY! your order—no money now. Pay only on arrival special sale price $3.79 and postage. If after try-on you don't think it the biggest bargain in your life, your money back.

COLORS—Navy Blue, Tan, Natural, Brown or Black. SIZES—Women's 32 to 46 bust; Misses' 14 to 22 years.

INTERNATIONAL MAIL ORDER CO.
Dept. DX2379, CHICAGO

Poultry Fencing
$4.50 ROLL

Wyandotte graduated wire fencing fully two-gauge heavier than usual. The mesh graduates from one inch at bottom to four inches at top.

The 3-foot high is $1.50 per roll of 165 lineal feet; the 4-foot, $5.25; 5-foot, $5.75; and the 6-foot, $6.50 per roll.

WHITING-MEAD
415 E. Ninth St., Los Angeles

Going! Going! Gone!

How many readers remember the old-time auctioneer? Every village, town and city used to boast of the gentleman who cried, Going, going, gone. A few of his most worthy sons still cry out, but classified advertisements have displaced him in most cases.

The Classified Page is the modern auctioneer. If you are the seller it will permit you to offer your goods to 10,000 to one under the old auction sale.

If you are the buyer you may sit at home and select from goods offered many miles away.

Read the classified if you buy! Use the classified if you sell!

Hawaii's Pineapples

(Continued From Page Three)

veniently at hand that I might [illegible] quately describe it. It was a big f[illegible] weighing nearly ten pounds w[illegible] incipient case of autointoxi[illegible] induced by an excess of sugar con[illegible] plus sunshine. In plain words, it w[illegible] dead ripe and would start to ferm[illegible] before another day. And I ate it, or [illegible] much of it as I could, with an un[illegible] trollable, ecstatic wriggling of toes.

As in the development of most California's horticultural special[illegible] there is in Hawaii one outstanding [illegible] who is known as the "father of [illegible] pineapple industry—James D. Dole.

It was Dole who first caught [illegible] vision of commercial possibilities [illegible] he has contributed the indo[illegible] courage and faith which hav[illegible] the "faithful" to carry on. [illegible] the Islands from Boston in 1899 [illegible] intended merely to take up a h[illegible] stead and engage in truck garden[illegible] But soon he saw the opportunit[illegible] pineapple production and now is [illegible] ognized as the leader of the ind[illegible]

Among the factors this m[illegible] contended with are problems of [illegible] ing, fertilizing, plant dise[illegible] control, farm machinery, labor [illegible] transportation, machinery for [illegible] facturing, utilization of by[illegible] shipping, advertising and m[illegible]

An interesting and romance [illegible] recently brought to light, seem[illegible] liarly significant in the light of [illegible] Dole's Massachusetts origin. [illegible] that in old colonial days the pin[illegible] was regarded as a symbol of hospital[illegible] ity. There was found at S[illegible] "pineapple house," so called be[illegible] of the presence of a wo[illegible] representing the tropical fruit [illegible] stood above the entrance [illegible] In [illegible] other instance a hotel was fo[illegible] have similar figures upon th[illegible] way balustrade.

It was in the year 1908 that the [illegible] dustry reached the turning p[illegible] overproduction was threatened [illegible] when a conference of leaders r[illegible] in the launching of a sales and [illegible] vertising campaign by the Pin[illegible] Association.

From an original appropr[illegible] $50,000, the annual advertising [illegible] has grown to several hundred t[illegible] sand, the attractive "copy" being [illegible] miliar to all ORCHARD and FA[illegible] readers, who subscribe for Nat[illegible] magazines. Despite the fact that [illegible] sociation advertising was discont[illegible] for several years from 1915 to [illegible] consumption has increased ye[illegible] year as the result of the "seeds" [illegible] in the original campaign. A[illegible] some marketing difficulties ha[illegible] encountered since the war th[illegible] are in a position to know ext[illegible] belief there is little possibili[illegible] production.

Individual packers, too, ha[illegible] on the publicity work [illegible] apple is a regular arti[illegible] thousands of homes where [illegible] was rarely or never used. N[illegible] have been developed and distr[illegible] attractive form among [illegible] housewives and a product wh[illegible] merly was limited in serving [illegible] ordinary forms now is the ba[illegible] gredient of delicious pi[illegible] sauces, puddings and many o[illegible] ticles of food—not to ment[illegible] ages.

These are just a few "high lights" [illegible] a distinctly American enterpri[illegible] too frequently is lost sight of [illegible] of the comparative isolat[illegible] home environmen[illegible] Yet it [illegible] American [illegible] essentially [illegible] In that San Francisco is the [illegible] house and port of entry [illegible] of the crop. Supplies [illegible] Impressive figures are p[illegible] the Pacific Coast and [illegible] the "pineapple money" [illegible]

Friendly Philosophy

(Continued From P[illegible])

much of the rice [illegible] has [illegible] to grow bumper crops of [illegible] unsetting the [illegible] theory that [illegible] the soil.

The present plan is [illegible] year rice, one year fallow [illegible] barley.

A large operator who [illegible] when the rice boom flatt[illegible] recouping his fortune this [illegible] rising barley market.

And more than 100,000 [illegible] is being handled without J[illegible] bor—which is significant [illegible] the number of white [illegible] needing work, and the f[illegible] some growers that rice [illegible] were inseparable.

If we can raise rice [illegible] bor and sell the [illegible] Nipponese it would be p[illegible] Zinfandels and Alicant[illegible] foot' Johnson' [illegible] Merritt."

Mixing Agriculture and Land Selling in Marin

Enterprising Novato Farmer Finds Time to Handle Side Line of Real Estate

BUYERS of agricultural land prefer to deal with someone who is engaged in tilling the soil and therefore in the best possible position to judge ranch properties. Taking advantage of this fact, William Koch deals in as well as digs in dirt, making both operations profitable.—*The Editor.*

By O. H. BARNHILL

SPEAKING of mixed farming—how about selling land for your neighbors while raising crops on your own? That wasn't William Koch's idea when he bought a fine 10-acre farm home in the Novato Valley (Marin County). The realty side line was forced upon him, as a matter of fact, but has proved so pleasant and profitable he has no intention or desire of discontinuing it.

Like many other wise men, Koch came from the East, where he was engaged in the hotel business. The green hills of Marin looked mighty good to him; therefore, in 1917 he bought one and has been happy ever afterwards. The San Rafael real estate dealer who made the sale shortly afterwards moved to San Francisco. In order to save traveling expenses, arrangements were made to have Koch take care of the realtor's Marin clients, all of whom finally were turned over to the newcomer.

"A farm buyer naturally has more confidence in the judgment of a farmer than a town man," Koch points out, "especially if the farmer is living in the district where the prospective purchase is located and is actively engaged in animal and crop production. A farmer-realtor is in a position to know whereof he speaks when it comes to questions of soils, varieties, markets and other questions vital to agriculture. Furthermore, the man he sells to becomes his neighbor; therefore, in order to avoid unpleasantness the agent is apt to avoid dishonest deals."

FARM WORK COMES FIRST

There is no danger of real estate business tail wagging the Koch farm dog, because the poultry and orchard never are neglected in order to attend to a land deal. The owner of Pine Knoll Ranch is primarily a farmer and secondarily a realtor. Although without previous agricultural experience, he is conducting a model farm, in order to demonstrate what can be accomplished in Novato Valley.

His place is an example of neatness and beauty, while nuts from his trees won seven first premiums at the last two annual horticultural exhibits of the University of California at Berke-

When it comes to farming, Koch practices what he preaches. His little farm is a model of neatness and produces prize nuts and fruit. The master of Pine Knoll capitalizes friendship and public spirit and is deservedly popular in the community.

[illegible] The young trees which he planted [illegible] brought into bearing are unusually [illegible] and well shaped, while the fruit [illegible] they bear are first class. The [illegible] department is necessarily small, [illegible] good shape and profitable.

[illegible] is one of the newer outlying [illegible] districts of the Petaluma section, the prosperity of which oozed [illegible] Marin and is intensifying the [illegible] operations in this beautiful [illegible] In 1918 only 4837 cases of eggs [illegible] shipped from Novato, while last [illegible] number had increased to 32,- [illegible] very substantial five-year gain. [illegible] there is a possibility of Novato [illegible] Petaluma at her own game is [illegible] by the fact that nine out of [illegible] Novato birds shown at the [illegible] last year won [illegible] hens was [illegible] at the [illegible]

[illegible] Bartlett [illegible]

Winter Nelis for cross-pollination, on two separate blocks. One acre was planted to IXL almonds. A number of Peerless and Texas Prolific trees were interplanted for pollination purposes. A few hives of bees also assist in this good work. The trees were set 20 feet apart each way. The almonds were placed on a sloping hillside, to lessen the frost hazard.

The land was prepared carefully in the fall of 1917 by deep plowing and subsoiling. Where the subsoil was very compact it was broken up with dynamite for the reception of trees. Early the following spring the ground again was plowed and thoroughly pulverized.

The sandy loam soil has been cultivated thoroughly and a dust mulch maintained. In the fall before the trees were set the ground was given a dressing of dehydrated lime, which was applied at the rate of one and one-half tons per acre. This helped produce a heavy crop of alfalfa. Barnyard and chicken manure has been applied to the soil the past two years. Intercropping has not been attempted, as it is desired to give the trees every advantage.

Commercial fertilizers are being tested. Long pruning has been practiced, but for windy locations a modification of this system is advised.

The fourth year after the pears were planted they yielded 11 tons of fine fruit, of which 90 per cent graded No. 1.

Neighborliness being the rule in Novato, several fruit growers have removed line fences. "This not only saves fencing expense," Koch points out, "but leaves more land for crop production and destroys one of the chief harboring places for rodents."

The Pine Knoll Ranch takes its name from a rounded hill, which occupies about three acres and bears upon the crest a number of pine trees. Here the farm home is located, surrounded by beautiful vines, shrubs and flowers, the credit for which belongs to Mrs. Koch, an expert and enthusiastic floriculturist.

An inspiring view of Novato Valley is enjoyed from this elevated location. A number of San Francisco people have made their homes upon the green, wooded hills which surround the valley, going to and from the city each day. There are three methods of transportation to Bay points: Northwestern Pacific Railway, State Highway stages and Novato Canal.

Koch is director at large of Novato Center, Marin County Farm Bureau, and is the soul of hospitality and friendliness, traits which doubtless were developed during hotel keeping days. He and other Farm Bureau workers recently visited a pear orchard in Mendocino County for the purpose of learning more about pruning methods, which information will be passed on to their Marin neighbors.

Successful Small Flock

NEAR Red Bluff there is an example of a small flock of sheep well cared for being a much greater asset than a big band—that is a real lesson. This is the Shropshire flock of Jos. I. Casale.

"Joe" has about 200 breeding ewes, a flock he has been nearly 20 years in perfecting and of which he is justly proud.

He has some registered ewes but most of them are practically pure bred, none but the best registered rams having been used in the flock for many years.

There are about 400 acres in Joe's present holding—some river bottom, some bench land.

In addition to the sheep he has a lot of good, medium-type Poland China hogs.

He markets close to 100 rams a year at about $40 per head.

Joe has developed a type of Shropshire that is especially fitted for Sacramento Valley and foothill conditions, a big, rugged, large-boned sheep that is active and a good rustler and sires husky, quick-maturing lambs.

None of the "pee-wee" pony type for him. He is like the late Henry Wardwell of New York—a great improver of Shropshires—who said, "The first thing a farmer asks you about a ram is 'how big is he?' and the next is 'how much will he shear?'"

Joe Casale is an excellent example of an old time Sacramento Valley farmer who has conducted grain growing operations on a big scale and who now recognizes the value of good breeding and is making it pay in a thoroughly practical way.—W. S. GUILFORD.

"Readin' Ritin' *and* 'Rithmetic"

California

IT'S a far cry from the little red school house, where "readin', 'ritin' and 'rithmetic" were the principal subjects taught, to the magnificent educational palaces which adorn the California countryside in ever-increasing numbers. These centers of elementary learning are the pride of the populace and go a long ways toward placing the farmer and town man on an equality in the matter of worth-while school advantages.

Where school houses such as are illustrated on this page exist there is little excuse for farmers moving to town in order to educate their children, because the quality of instruction usually keeps pace with building improvements.

"The best is none too good," is the motto adopted in most country districts by those in charge of school building programs. Plenty of space, light and air are provided in modern country schools.

One-story buildings are the rule, while in order to reduce the fire hazard to a minimum wood has given way to stone, concrete and brick construction almost entirely. Lastly, but by no means least in importance, these educational edifices possess great architectural beauty.

But one thing is lacking: a teachers' cottage. This necessary adjunct is being supplied in some districts and helps materially in getting and holding a superior class of instructors.

Azusa elementary school. Building extends along three sides of a quadrangle. (Allison and Allison, architects, Los Angeles.)

Above—Ynez school, Alhambra. This building bears a striking resemblance to an old Spanish mission and also is constructed on the increasingly popular quadrangle plan, three sides being enclosed. Heavy shrubbery adds a refreshing touch of green. (Allison and Allison, architects, L. A.)

Above—Union grammar school, Soquel (Santa Cruz County). Has six class-rooms, library, teachers' room, principal's office, auditorium seating 600 and steam heating plant. Building is of reinforced concrete construction, with tile roof. Cost, $47,000. (W. H. Weeks, architect, San Francisco.

Above—Union high school, Fowler (Fresno County). Sun Maid raisin profits helped pay for this magnificent educational palace. (Allison and Allison, architects, Los Angeles.) Right—San Martin grammar school, San Martin (Santa Clara County). Has five class-rooms, teachers' room, principal's office and combination auditorium, with kitchenette adjoining. Cost $35,000. (W. H. Weeks, architect, San Francisco.)

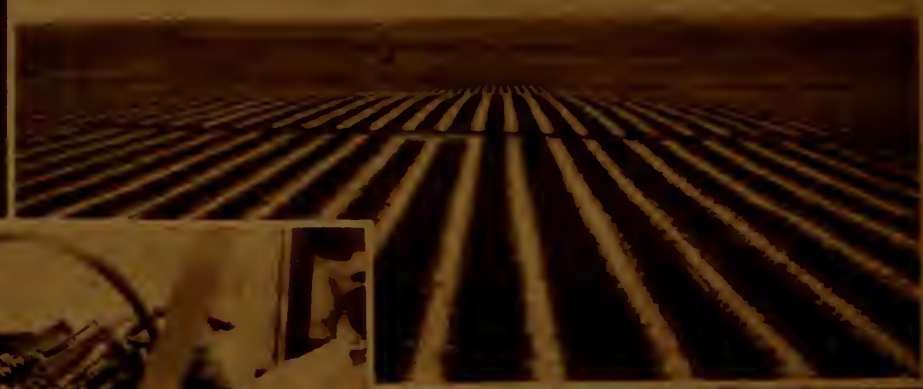
Left—Wildwood elementary school, Piedmont (Alameda County). Has five class rooms, kindergarten with large terrace, teachers' room, principal's office and steam heating plant. Cost, $40,000. (W. H. Weeks, architect, San Francisco.)

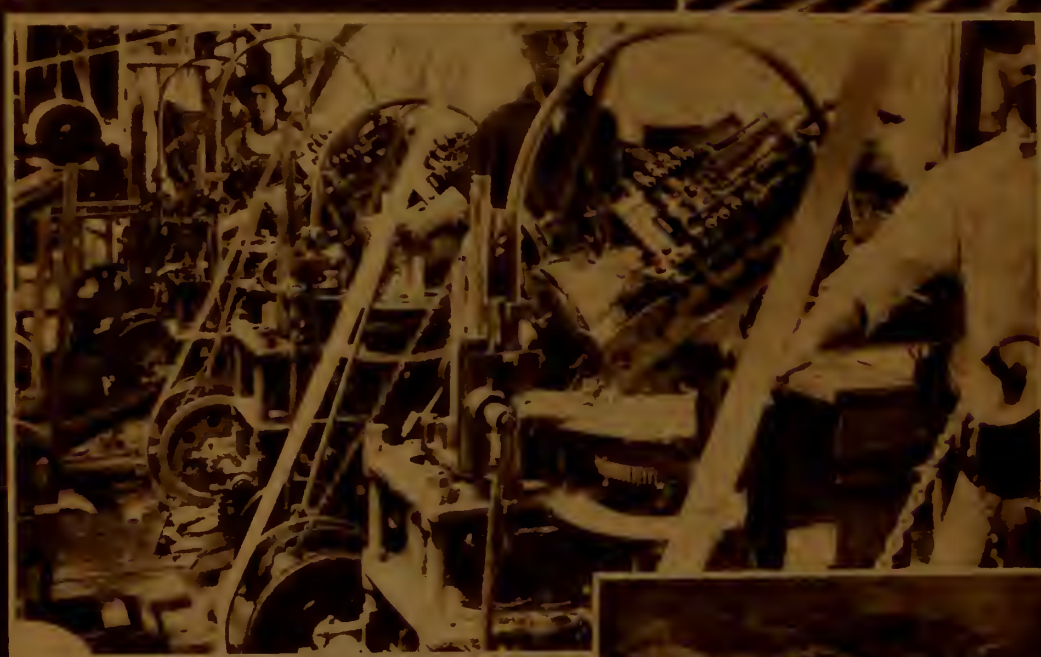
ORCHARD and FARM

JULY 27, 1924

PINEAPPLE LAND

Linking California and her sister empire of the Pacific are fast liners, such as the Maui of the Matson Line, shown above, headed for Honolulu. During the summer this steamer carries as many as 200,000 cases of canned pineapple, also much sugar and great quantities of miscellaneous merchandise, besides passengers.





Above—The paper mulching system, now in general use on the Islands, is being tried in California for various crops as a means of conserving moisture, protecting young plants and preventing weed growth. The paper is spread with tractors, which carry huge rolls of material. Left—The "Ginaca" machine, which slices, cores and partially trims pineapples, greatly simplifying the process of preparing the fruit for canning.

Right—Airplane view of one of the great Hawaiian pineapple canneries, covering acres of ground and equipped with the most modern machinery. The total production last year of Hawaiian canned pineapple was nearly 6,000,000 cases, valued at $30,000,000. The industry is 40 years old.

Above—This remarkable view of Hawaiian pineapple fields shows the fruit as it appears when ripe and ready for harvesting. Right—This view shows the young plants. Five or six months after the appearance of the first of the young flower heads the fruit matures.

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ORCHARD and FARM
THE CALIFORNIA AGRICULTURAL WEEKLY
JULY 27, 1924

But Perhaps He Will Turn His Back to the Soil

The Tired Sales Manager Dreamed a Dream of Health, Happiness and Independence—An Old Topic That's Always New: Land Hunger

By THE EDITOR

HE was a pleasant chap, with winning personality and the easy, confident manner of the seasoned salesman—one who had served his apprenticeship for twenty years "on the road." I learned, and was now sales manager for a large San Francisco wholesale house.

Perhaps it was our mutual interest in that universally overworked topic, "the weather" (for the day had been a scorcher and we both had come recently from the fog-drenched coolness of the Bay District); or, perhaps, it was the fragrant influence of milady Nicotine that drew us together. At any rate we sat wooing the elusive evening breezes upon the hotel veranda in a Sacramento Valley town, and talked of many things.

J. C. KNOLLIN

He had spent a fatiguing day "breaking in" a new man, making endless calls upon unresponsive merchants—always smiling, alert and confident, I presumed; taking the discomfort and separation from his family as a matter of course.

This reporter, for his part, had been long hours afield with camera and notebook—walking, driving, asking questions, listening, learning and perspiring (with his "copy" yet to be written and mailed); re-living with the fine farm folk he had visited, his own varied "practical" experiences.

These adventures involved obstinate mules and gas engines, dusty fields, ailing cows, leaky pumps, broken castings, unreliable help, rising costs, falling markets, orchard pests, water litigation, taxes, frosts, fires, bills and mortgages—all the provoking ills that farmers and fruit growers are heir to.

Discuss his life and business with almost any farmer and you will find these are the things that remain in his memory rather than the "sweet freshness of the dewey morn," the "ozone in the air," the "healthy, outdoor life," the "independence" and all other lures of back-to-the-soil enthusiasts. And if the farmer has been successful and made money (as many have) he will be none the less aware of the cost of success, even though he loves the country!

And so it [illegible] with my new-found friend in [illegible] to his own business. He had made [illegible]—big money—and [illegible] was getting a salary larger than the [illegible] of any moder[illegible] in that [illegible].

[illegible] the road," tired [illegible] of ap[illegible] when he [illegible] worried; tired [illegible] young [illegible], [illegible] climb to the [illegible] [illegible] concern; tired of being more than half the time away from his wife and children.

What, then, was in his mind? Middle age found him dreaming the dream that is almost universal among city men—the dream of a farm home, where he could spend the balance of his days "growing things." Just around the corner was that little country place—health, independence and happiness.

"I guess you don't envy me, my present profession, and I certainly don't envy you yours," he said. "I have a brother who is a newspaperman and I know there isn't much in it but love of the work.

"However," he added, "we may both envy the fellow who has a good farm and can live at home and be independent—"

"Hold on," we interrupted, rather rudely we fear. (That "editorial we" may make this true narrative seem a bit less personal.) "Having worked in the hay and grain fields as well as the field of journalism, we may be pardoned for calling to your attention the fact that the so-called 'independence' of the farmer has been almost as grossly exaggerated as was Mark Twain's death when he personally denied it.

"Are you not looking at farming with eyes only for its advantages and perhaps without a clear understanding of its disadvantages? True; we nearly all have that natural, inherent longing for the ultimate country home. But are we willing to segregate fact from fancy?"

We recalled his recent confidences. "You say you have a few thousand in negotiable securites and could easily buy a small place, build a comfortable modern home, plant fruit trees and a garden, keep a cow, install a poultry plant and raise most of your food, besides enjoying a nice cash income for your labor? But what do you know about fruit growing and what do you know about poultry raising? Each is a profession in itself.

"Can you realize interest on th[illegible] $1000 an acre you propose to pay for this 10-acre place you have in mind? You admit you would expect your little 'ranch' eventually to buy gas for the car, clothe the family, pay doctor bills and provide college expenses for the boy and girl.

"You wouldn't live in this hot valley you say. Yet you can buy productive land here for a fraction of the cost of acreage at the gates of a big city. And if you are going in for farming as a business can you afford to place first the question of home environments? Have you considered the risks and hard work involved?"

We told of a 40-acre fruit ranch, on which the owner has spent recently hundreds of dollars trying to protect his crop from red spider. This grower has been getting ahead a little year by year, but at the end of 1924 probably will just about break even—a fine reward for 12 months' hard physical work. This trouble came as a climax to a long train of misfortunes which will cut down his crop by half.

We told, also, about a poultryman who made $1.50 per hen net profit last year and has accumulated a few thousand dollars. "However," we added "he spent years learning how to do it and is as much a slave to his business as you or I to ours.

"Another successful poultryman attributed his achievements to the fact that the company from which he bought his land employed an expert to teach the colonists. This man stated he had not taken a vacation for two years nor employed any help since he started. His overalls were soiled and his hands gnarled, and he suffered no illusions as to the nature of his work."

We mentioned also the troubles of the range cattle and sheepmen and recent losses of the breeders.

We spoke in this way because we have seen so many disillusioned city folk who imagined before they entered enthusiastically upon their agricultural enterprises that farm life is just one round of "dewey morns, ozone and independence."

It was not our purpose to pour cold water upon a laudable ambition; but having had the opportunity to observe at first hand, we felt we knew whereof we spoke. Our new friend, however, had ready answers.

"Yes," said the tired sales manager "I think I realize the truth of these things, and if I do make this change, it will be with my eyes open. I am getting too far along in years to get down to hard, physical work and tackle farming on a large scale. But I think you'll agree most of the failures are undercapitalized. I'm not going to start on a shoestring.

"Yet, if I analyze my feelings, I guess what I want more than anything else is a country home, and I can't expect to make a lot of money at agriculture.

"My experiences as an investor have been unfortunate. I have always made good money and like most other city men have bought stock in what appeared to be the soundest corporations, only to see part of my savings shink to almost nothing during recent hard times.

"I could not help entertaining the thought," he added, "that if I had put that same money into land, even at a good figure, at least I would now have the land, which nobody could take away from me; and if I owned a home, free of debt, on that land, I would be sure of a roof over my head; and if I had my usual good health, even as a rank amateur I could produce a large part of the food necessary for my family. That surely is one form of independence and, perhaps, the only real kind."

A match flared, revealing against the dark curtain of the night the speaker's strong face and gleaming, even teeth. He was youthful in appearance except for his graying hair, and quite apparently had lived cleanly and taken care of himself.

"I enjoy good health now," he continued, "but this traveling is beginning to tell on me. And, after all, isn't there something in life besides simply accumulating money? My children will soon be grown. I have seen too little of them. Their mother and I have been separated a great deal. We have never had a real home that we could call permanent.

"So here's the way I have doped it out: I think I shall buy that ten acres, build the house we have planned and commute to and from the city as long as I continue in business, staying with my present work a few years longer.

"Meanwhile during the periods when I am not out on the road we can lay plans for developing it, study the bulletins and farm papers, visit other little farms, take the University correspondence course in poultry raising, and learn all we can about agriculture before I resign.

"And I shall not resign," he continued, "until I have regained enough of my fortune to carry us along while we get our place in shape to produce a regular income. Eventually I hope to have 3000 hens, but I am going to start in a small way and build up."

That his head was level and his judgment sound seemed readily apparent. But we ventured a suggestion: "Better keep in touch with your old line in case the country life doesn't go, and you should want to get back in the harness."

He laughed. "Not a chance, when I make the break it will be final!"

But, recalling the story of the retired traveling man who couldn't sleep unless he had an electric fan to blow cinders across his face from a box near his bed, we wondered how 'final' this decision would really be.

Will 1930 find him contentedly chopping greens for his hens, and smoking his pipe beneath his own vine and fig tree? Or will it find him back on the road, a sadder and wiser man? We wonder!

Will the Dream Come True?

COUNTRY life is an ideal life for those who really like it. Agriculture in all its branches is a good business for those who are adapted to it and are willing to work and learn. But it is necessary to understand the cost as well as the potential profits.

As in all other lines of business, some who try it prosper and "stick"; others find they have made a mistake. Of the latter class, a few lose their life savings; others nothing but the time they have spent on the experiment.

After all, it depends on the man. And the only cure for the family that has the "fever" is to try it. Our "friendly philosophy," therefore, will not have any depressing effect upon the suburban real estate business—despite the fact (as Ring Lardner would say) our gems of wisdom are so eagerly awaited and devoured by what we have nicknamed the reading public.—J.C.K.

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TO SERVE—All those who, for pleasure or profit, engage in any branch of the basic industry—AGRICULTURE.

FARMER'S *Viewpoint*

SOME folks say we're suffering from overproduction; others call it underconsumption.

Apparently the only cure is to produce less and eat more. That ought to suit a lot of people.

But if we work less we can't eat as much, and if we eat less we can't work as much.

About the only thing left for the farmer to do is to take a long vacation and fight birth control and immigration restriction, until the population catches up.

Or else find some new uses for food products—grapes, for instance. Perhaps the little sun maids could start a fad for raisin necklaces.

It is estimated if every American flapper wore a fresh raisin necklace every day, the growers would have the public by the throat in six months.

And there ought to be some way to extract the iron; raisins are full of it! Had your raisin horseshoes or baling wire today?

Fresh grapes offer a more pressing problem. More presses might solve it!

Poultrymen don't need to worry much about overproduction as long as our vaudeville shows continue to get worse. There will be a constantly increasing demand for the storage product on the part of the theater-going public.

Fortunately there will always be a stable demand for oats and hay.

As for prunes—there seems to be only one way out: that is to reduce the tonnage by drying them more. Thoroughly shriveled prunes, with the skin fitting tightly about the pit, unquestionably would pack more to the box and make a hit with the boarding house proprietors.

Or we could develop a market for prunes as bottle-stoppers in place of corks. The possibilities are endless.

WHEN J. Augustus Winkleford came to our district he didn't know a soil auger from a hame-strap.

He thought Rhode Island Reds were a species of Eastern communist, and to his untutored, citified mind, Poland China was some kind of porcelainware.

If any one had advised him to feed his horses hot oatmeal, undoubtedly he would have tried it.

To J. Augustus, agriculture was as deep a mystery as Einstein's theory to a Mexican section hand.

One time he asked the farm adviser whether he should thin his peaches with an axe or dynamite, and was surprised to learn that the operation applied to the fruit and not the trees.

Winkleford spent an entire night in the irrigation canal in a vain, but determined quest for snipe, and was thrown six times by a ten-year-old horse before he discovered the neighbors' boys had plastered the saddle blanket with sand burrs.

His ability to take punishment, however, won him the admiration of the entire neighborhood. It was one of the girls who finally told him it wasn't necessary to shovel the poultry mash through a sand-sieve.

One of our flippant youths actually got a deposit from Winkleford on some heavy-shearing hydraulic rams.

Another almost sold him a flock of alkali-resistant Holstein hens.

But J. Augustus was so good natured, we finally made him one of us. Did he give up and move to the city? He did not.

Winkleford is now our most substantial citizen. He has made more than any of us old hard-shells, because he had an open mind and a sunny disposition.

Some fellows who owe him money call him lucky. I suspect he made good because he had nothing to unlearn but his ignorance.

WHAT'S NEW? *Keeping Abreast of* Agricultural Progress

Advertisers Protect Highways

THE following companies have agreed to discontinue obstructing the scenery along California highways with billboard advertising:

The Standard Oil, Kelly Springfield Tire, Pillsbury Flour, Champion Spark Plug, B. F. Goodrich, Ajax Rubber, Ward Baking, Dodge Brothers, Sun Oil, Golf Refining, Fleishman Yeast, Ventura Refining, Washburn-Crosby and Union Oil.

Recommend Electric Economy

THE California Farm Bureau recommends a net average saving of 25 per cent of electric current on account of the power shortage, due to drouth. J. J. Duell, head of the law and utilities department, asks consumers to reduce lighting one-half and to eliminate the use of electric appliances as much as possible. Those who have gas engines and other forms of power are urged to utilize them to the greatest possible extent.

Erect S. F. Animal Hospital

THE Society for the Prevention of Cruelty to animals is erecting at San Francisco a $30,000 animal hospital. Around a large grass plot are roomy stalls for horses. Some of the stalls will be artificially heated.

There is a separate hospital for smaller animals. Both buildings are fireproof and equipped with operating rooms, with electric lights for night work, medicine cabinets and special apparatus. The main structure has a frontage of 126 feet on Sixteenth St.

Selling Cows Co-operatively

THROUGH the San Joaquin County Farm Bureau, Manteca, Ripon and Escalon dairymen are selling their cull cows co-operatively. A charge of $5 is made for killing and dressing the animals and $10 for managing the business. Freight extra.

Stanislaus dairymen have tried this method and are well pleased with results, according to H. M. Harter, assistant farm adviser. Calaveras County cattlemen are planning to handle beef cattle by this method.

Kreutzer Leaves Durham Colony

GEORGE KREUTZER, former superintendent of the State Land Colony at Durham, has gone to Washington to assist Dr. Elwood Mead in the Reclamation Service. Kreutzer will make special surveys of national irrigation projects, investigating agricultural economic conditions.

Dr. Mead went to Washington in April to assume the office of commissioner of the Reclamation Service. Both Mead and Kreutzer achieved a national reputation on account of their California land settlement work.

Pomologists Touring States

THE American Pomological Society July 14 began a tour of 17 States, the trip being scheduled to end August 24. Meetings with the State horticultural societies will be held en route from Kentucky on the south, Illinois on the west, Michigan on the north and Massachusetts on the east.

Orchardists and their families are joining the "fruitful" caravan, visiting profitable groves en route and attending conventions and exhibits at central points. Western fruit growers contemplate holding a similar tour of the Pacific West next year.

Shipping Orange Juice East

CALIFORNIA orange juice is being shipped to New York, Boston and Chicago in car lots in glass-lined, enameled refrigerator cars. A new process which preserves the juice in excellent condition is employed in preparing the product for shipment.

A different process, solar vitalizing, is to be used to preserve orange juice manufactured at Covina in a plant erected there a few months ago. From this point the beverage is to be shipped in gallon bottles to Eastern markets, without pasteurizing or the use of chemical preservatives.

California Plums Sell Well

CALIFORNIA plums sold at wholesale recently as high as a nickel apiece, fancy wrapped Formosas from the Newcastle (Placer County) Fruit Growers' Association bringing $4.45 per box of 90 plums in New York City the first week in July.

One car of Placer plums brought $2800, while a car of four-by-four Formosas sold in Boston for $2618. Triumph peaches from Newcastle sold for $1630 per car.

These high prices were received for large fruit, small stuff selling very low—sometimes not enough to pay marketing costs.

Private Experiment Station

THE California Delta Farms Company, Stockton, is conducting a number of experiments on a 250-acre farm on Kings Island (San Joaquin County). An elaborate system of cost accounting is being used, for the purpose of determining production expenses. Previous experiments indicate that the cost of producing potatoes is $125 per acre, plus rent or interest on investment and fertilizer expense. Onions and celery cost $200 to $250 per acre.

New crops are being experimented with and new tillage methods tried; fertilization irrigation and drainage tests made and later on marketing methods are to be studied.

Saving on Fertilizer Bills

FARM BUREAU members in Louisiana have saved more than $10,000 by purchasing co-operatively 700 tons of nitrate of soda and 400 tons of acid phosphate.

Chili has agreed to remove her export tariff on nitrate, which tax costs this country $11,000,000 a year, provided we continue to use her nitrate. This move is considered an effort to postpone the manufacture of atmospheric nitrogen in the United States.

Co-operative Veal Marketing

BUTCHERS are offering Merced County farmers 4 cents a pound for veal for which San Francisco dealers pay 8 cents. Merced butchers retail veal for 22 to 30 cents a pound, while in Los Angeles calf meat sells up to 47c.

Because of this wide spread between producer and consumer prices members of the McSwain (Merced County) Farm Bureau center are planning to sell their veal calves co-operatively, either alive or dressed.

Tehama Bounty Compromise

CONTENDING that the work of State and Government trappers engaged in the destruction of predatory animals has benefited the big stockman more than the average small land owner, a group of farmers, many of whom are presumed to have engaged in trapping as a side-line, recently filed a vigorous protest with the Tehama County Board of Supervisors.

Sheep owners, however, presented a compromise plan whereby it is expected part of the $[illegible]00 county appropriation will be made available hereafter for bounties and part for continuing (possibly on a smaller scale) the work formerly done in co-operation with State officials.

The bounty advocates contended coyotes were overrunning the lower foothill country.

THEY SAY

"Give Newcomer a Fair Chance"

S. J. RICHARD — Photo by Hedum

S. J. RICHARD

Manager Agricultural Department, Sacramento Chamber of Commerce

ONE of the functions of this department is to aid the new settler to select the right soil location, crops, or improved ranch to suit his pocketbook, experience and inclinations. After he is properly located, he is encouraged to join the Farm Bureau and co-operate with the agricultural Extension Service.

A typical example of this service occurred recently when an Easterner advised us he had just $10,000 to invest, this being his life saving, his entire capital. He wanted to make his home near Sacramento and engage in some form of agriculture.

Had this man been allowed to buy a large unimproved tract only a miracle could have saved him from eventual ruin. He did not have enough money to finance himself while waiting for fruit trees to come into bearing; in fact not sufficient to handle a big enough acreage of commercial orchard to make a living. Furthermore, he lacked experience in fruit growing, but had been interested in poultry.

What he needed, evidently was limited acreage, close in, suited to intensive cultivation and capable of producing an immediate cash income. But being a stranger, he might easily have been led astray by his own enthusiasm.

Finally he found a bargain in a small, improved poultry farm, equipped with home and buildings, and already stocked with sufficient laying hens to make a good start in the egg business.

This combination seemed to meet his requirements exactly. He bought the place for less than his entire capital and paid down only half of his money, leaving him with sufficient cash to develop the business and furnish a surplus in case of misfortune.

He is now well on the way to independence, is paying off his debt, enjoys his home and business, in short, is happy—and a booster!

Had this man made the wrong choice he not only would have condemned California and the Sacramento Valley but probably would have prevented many other families from settling here. As it is, he will spread the good news and aid in bringing more families to this section.

As a result of such incidents the "overload" of the chamber is reduced, the population of the valley increased, and business in the city of Sacramento stimulated.

[illegible]

Range Cattle Men Almost Down But Never Out

Tehama County Banker-Cattleman Refuses to Be Pessimistic Over Situation—Sees New Era in Breeding, Feeding, Management

IF YOU were a range cattleman and had been through seven years of drouth, several periods of unsatisfactory market conditions, a siege of foot-and-mouth disease, a few forest fires and a little labor trouble thrown in for good measure, would you still be able to grin and look the world in the face with your head high?

California has a good many cattle-raisers who have had just that experience and who have taken their medicine in just that spirit, the spirit which has made America what she is and given her the agricultural and industrial leadership of the world.

Any one who thinks the range cattle business has "gone to the dogs" and all the cow-men are down and out, should talk to some of the officers of the California Cattlemen's Association (which, by the way, has gained several hundred members during the past year). Without deprecating the difficulties they have had and are having, these leaders have their faces straight to the front and are doing anything but whining.

Instead of demanding that the State and the U. S. D. A. and Congress and the President "do something about it," they have taken the bit in their teeth and are working on the theory that self-help is the surest kind there is. And incidentally, of course, they are demanding a square deal from the "powers that be."

One such leader is T. H. Ramsay, president of the Red Bluff National Bank, a member of the State Board of Agriculture, livestock operator, former president of the California Cattlemen's Association, and one of California's agricultural leaders.

The cattle business is not only safe and sound in California, but on the verge of a big change for the better, in the opinion of this authority.

"True, we have been through some very trying times" Ramsay admits, "but everything indicates we have reached the limit of depression and started on the upward climb.

"On the whole the owners of cattle are in better financial condition than is generally supposed. Of course, some have gone under and a few more may succumb to economic pressure; it is a question of the survival of the fittest. But we are facing new conditions that call for new methods, and unfortunately many of the cattle men have not kept abreast of the times."

Mr Ramsay believes the day of old, haphazard range methods is past. The era of the scrub cow and raw-boned steer will never return. Better beef, younger beef, is the present order.

"Our cattlemen in this northern territory have learned the lesson of better breeding," he said to this writer. "They are using purebred sires, both Hereford and Shorthorn. But many of them have yet to improve their methods, particularly in range management. The recent studies by Professor Adams of the University of the cost of beef production, showed that too many cattle raisers are producing at a loss; that is, it is costing more to put a pound of beef on the market than they can hope to get at present prices."

Some interesting examples of successful range management in Tehama and neighboring counties were cited. Fenced pastures and rotation of range have shown their value in a striking way here. "Our natural grass is our best feed," he pointed out, and it is up to the stockmen to prevent its total extermination.

In the "good old days" the range cattle interests of the northern Sierras and coast range turned fat steers right off of open grass range. Now it is seldom that this is possible. Yet it does not pay to sell a high percentage of feeder stuff at present production costs. What, then, is the solution of the problem?

"Feeding in the Valleys," says Ramsay, "but not necessarily grain and alfalfa feeding. A number of local feeders are making money by renting stubble and pasture land for about $1 an acre, wintering the thin stock there and selling fat in May and June.

Animals that go on pasture weighing less than 1000 pounds frequently can be marketed at 1150 to 1200 pounds at comparatively small expense for feeding. One large operator rented 1700 acres last winter and made $30 a head on the stuff he fed.

Mr. Ramsay does not believe it pays to feed grain after the corn-belt method, in the north end of the valley. When he first came here in '99 as manager of the great Sta[illegible] ranches, he tried the feed-lot "stunt," using barley and chopped alfalfa, and since then has engineered or observed many similar attempts. "In almost every case," he reports, "the wet winters have militated against success in this kind of enterprise.

Money-making type of modern beef cattle—purebred Herefords. Insert—T. H. Ramsay, Northern California stockman, banker and agricultural co-operator.

"We have an average of about 26 inches of rainfall here, and apparently close feeding is not suited to this sort of winter weather. Probably it would be more successful further south, and it is a regular practice in the higher mountain valleys where it is dry and cold. Our heavy rainfall, however, makes an enormous tonnage of natural feed on the floor of the valleys, too much of which has been allowed to go to waste. It is the fellows who are taking advantage of this condition who are making money now."

More and more of the range men are coming to the use of leased lands and fenced deeded range, the Red Bluff banker points out. Most of the cattlemen in this part of the State have a winter range in the foothills and summer range higher up, partly in the forest reserve and partly further back in the mountain meadows over towards the Nevada line.

Drouth conditions and grasshopper damage this year, however, make it imperative that much of the stock be moved to neighboring States—Nevada, Idaho and even Utah, for feeding en route to market. The association and individual stockmen are working diligently now to bring about relaxation of quarantine regulations to make possible this needed migration, and it is hoped that by August the situation will have cleared up sufficiently to permit unrestricted movement.

It is believed this arrangement will result in increasing co-operation between the States of the entire Pacific West in future to make use of surplus feed for the general good of all concerned. In the case of Nevada, it affords an outlet for the quarantined alfalfa, as well as better prices.

Asked how the Cattlemen's Association was progressing in this district with its marketing plan, Mr. Ramsay stated practically 90 per cent of the cattle in the Northern counties are now represented in the membership, while more than 60 per cent actually have been signed up for sale through the organization's marketing bureau.

Although it may not be possible to get the marketing plan into full swing before next season, the majority of the Tehama County cattlemen believe it is a sound method, he said. A recent series of meetings conducted by President Russell, Secretary Hagen, Ramsay and others, resulted in the signing up of more than 75,000 head in northern counties, while a total of half a million head is said to have been lined up for controlled shipping throughout the State. Mr. Ramsay cites the success of the emergency control committee at the Los Angeles Stock Yards as proof of the necessity for regulation of supplies.

All in all, despite the fact that the cattle business has been going through a trying period of reorganization, the Tehama County banker sees light immediately ahead. He believes the man who is equipped with the right sort of outfit, including controlled range, good stock, experienced management and arrangements for feeding at least a part of the steers in the valleys, can make money.

But he points out the chances for the old-time, hap-hazard method are getting slimmer every year. "The grower must raise 75 to 80 per cent of the calves, improve constantly with pure-bred sires, supply more prime, young beef, and conserve his range. That's the answer to the riddle," he concluded.—J. C. K.

Texas Visitor Compares California With the Lone Star State

"YOU Californians have made more efficient and profitable use of what God has given you in the way of natural resources than the residents of any other State in America," is the tribute of [illegible] C. Richardson, field editor of "Farm and Ranch," leading Texas agricultural journal, who recently completed a six weeks' trip through the Golden State.

"Your accomplishments are a tribute to your people even more than your [illegible] climate and location," added Richardson. "Of course the subject of 'climate' is a rather ticklish one, [illegible] that I was disappointed in respect to your much-touted [illegible].

[illegible] baked in the [illegible] Valley [illegible] the [illegible] country [illegible] California [illegible] nearly froze [illegible] around San Francisco [illegible] the thermometer [illegible] Valley [illegible] climatic conditions are almost ideal, but on the whole this is not true of your richest agricultural sections.

"In that part of Texas where I make my home (the lower Rio Grande Valley) the climate is more uniform over a larger area, and we have to go much further to secure a change, but this very factor simplifies our agricultural problems. Unquestionably you have more varied conditions in proportion to area than any other agricultural State. Texas has six States in one, we might say; yet the areas having fairly uniform soil and climate are much larger than yours."

Asked what he considers our greatest handicap, Mr Richardson replied: "The high cost of water. Many of our Texas growers would throw up their hands in horror at the idea of spending for irrigation what the average California fruit farmer takes as a matter of course. It strikes me the irrigation problem is the greatest one you have to solve."

The [illegible] from the Long Horn country found much in common between the two great States. He pointed out the citrus industry is developing rapidly in Texas and gave an additional tribute to California spirit and ingenuity when he stated orange and grapefruit orchards could be developed at much less expense and apparently under more natural conditions in parts of Texas; yet the industry is being retarded there because of the apparent inability of the growers to pull together.

In fact, it was primarily to study our co-operative marketing methods that Mr Richardson came to the Golden State. He has visited with officials of all the big associations and some of the smaller ones and reached some definite conclusions which will be reported upon his return to Texas.

"We have had several successful co-ops in my section," he pointed out, "but on the other hand many have fallen by the wayside. I wanted to analyze the reasons for our failures and also to study the mistakes that California co-operatives have made, as well as see your successful methods at first hand."

Among the early conclusions reached by the interested visitor are these:

In order to succeed a co-op must not try to handle a number of different products. He cited one Texas organization that "went under" in attempting to sell both staples such as grain, and fresh fruits and vegetables.

The manager and as many of the officials as possible should be growers, or at least should be thoroughly familiar with all phases of production.

A reserve fund should be built up in some manner so that there would be no necessity of borrowing beyond the limits of good judgment in order to make advances to growers.

There should be no secrecy between the management and the members. True representation on the board [illegible] (Continued on Page 10)

Red Spiders Reduce Great Valley Prune Crop

Sacramento Basin Growers Find Irrigation Helps More Than Spraying—Methods Described

RAPIDLY forging to the front as one of our great prune producing sections, Tehama County is fulfilling the destiny forecast by those familiar with her climate, soil conditions and plentiful supply of irrigation water. The comparatively low cost of good fruit land, too, is a point decidedly in Tehama's favor. Older sections will have to "step lively."

Some Sacramento Valley growers, however, who have tried to "get by" without sufficient irrigation have suffered heavy losses from red spider this year and, according to those familiar with local conditions, have failed to realize the greatest possible returns from their orchards even during past seasons of comparatively heavy rainfall.

With water for pumping available at moderate depths, the visitor wonders why any one would attempt to grow fruit in this district without irrigation or with insufficient water, even when no private or district water rights are held.

Those orchardists in the valley, who are so fortunate as to have plenty of gravity water this year or who have provided for pump irrigation, will harvest a good crop, especially if they have managed to wage successful warfare upon the spider. This pestiferous pest has a strangle hold on some orchards and the valley got a worse "dose" this season than ever before in her fruit growing history, according to knowing "old-timers."

The "ill wind," however has done some good in that it has furnished the farm advisers with most effective natural demonstration plots to prove the value of good orchard management in forestalling damage.

It is the contention of Tehama County Agricultural Agent Don Smith, that spraying, although effective in checking red spider infestation, is even less important than adequate irrigation and good soil management applied as preventive.

As proof of this theory, he points out orchards in his own and other counties, where certain rows or parts of the grove are in excellent condition, while the balance of the trees are practically ruined so far as this year's crop is concerned. In several cases the first two rows along a main irrigation canal have a healthy appearance and good set of fruit (not to mention their greater size), while the other trees are brown and unthrifty, with practically no fruit this year.

In other orchards the same spotted condition is noted where the land has not been carefully leveled and trees in low spots have received more water.

One orchard shows the effect of cover crops, the part in which green manure was plowed under being very lightly infested while the other end, where only a natural cover crop was grown, is badly damaged. This is accounted for partly by the fact that the heavier cover crop improved the physical condition of the soil and consequently its moisture-holding capacity; partly by the added fertility and heavier irrigation.

That the old, haphazard orchard methods will not be profitable here any longer, is the lesson horticultural leaders are trying to bring home to the growers.

Orchardists have had things "their own way" so long, due to the natural fertility of the soil, that many are loath to adopt practices involving greater expense for production.

It has been demonstrated, however, that the larger and better crops resulting from adequate irrigation, cover-cropping, deep tillage and spraying, show an attractive profit on the added investment. And even this additional expense is offset by the advantage Tehama orchardists enjoy in their reasonable land values and low water costs as compared with those in many other fruit growing districts. Of all orchards examined for red spider damage, more than two-thirds showed the need of better care.

HEAVY CROP LOSS

The tonnage possibilities are indicated by the result of a prune growers' contest conducted last season by the Agricultural Extension Service. The winner produced 5.7 dried tons per acre.

Improvement in drying methods is advocated also. There are now some ten dehydraters in Tehama County.

The red spider problem looms large and is the most disturbing factor facing Sacramento Valley prune growers. It is estimated this year's crop in one district will be reduced 50 per cent because of the unusually severe infestation. Conditions frequently are favorable for rapid multiplication of the spiders once they become established. Sudden and intense heat, accompanied by a hot north wind, favors the hatching of the eggs, and at the same time causes rapid evaporation of soil moisture and also loss of water through transpiration from foliage, thus weakening the vitality of the trees.

If the orchard is in good condition, however, with adequate moisture to a sufficient depth, as indicated by the soil auger, spraying serves to check the pest quickly and the trees seem to have sufficient vitality to resist its attack.

An interesting example of this is afforded by two old orchards near Corning which have always been planted to alfalfa. Although the trees are nearly 40 years old, they have not suffered red spider damage. This is regarded as further proof of the resistant qualities of healthy trees. These orchards are presumed to have benefited both in fertility and moisture-holding capacity of the soil, through the presence of the deep-rooted leguminous intercrop, and also by the heavier irrigation they have probably received.

In general, Smith is making the following recommendations to Tehama County prune growers in respect to orchard management:

SPRAY PROGRAM OUTLINED

(1) If water is available, use it. Red spider is not so difficult to control if a sufficient amount of soil moisture can be maintained in the soil to keep the trees thrifty. Often, there are spots in our orchards which appear more susceptible to spider than others. Investigate the soil moisture conditions there. Perhaps a hard subsoil prevents water penetration, or a gravel bed prevents the soil from holding the water. Such parts will require water more often. Don't guess at moisture supply. Get into your soil with a soil auger or shovel and find out.

(2) Spray as soon as the spider appears, using lime sulphur, mixed as follows: 1½ gallons commercial lime sulphur mixture to 100 gallons of water. In extremely hot weather, use 1 gallon of lime sulphur to 100 gallons of water.

Add to each 100 gallons of spray to kill young when hatched: 4 pounds of sulphur mixed dry with ½ pound casein spreader. Mix with water until all lumps are broken, put on a screen and wash into spray tank. Use at least 200 pounds pressure if you can get it. Be sure to cover every leaf, especially the under side of lower leaves.

COVER LEAVES THOROUGHLY

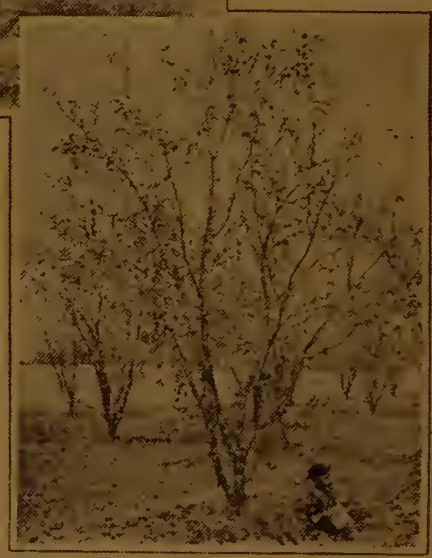
Check up your spraying and see that the leaves are being covered. Spray rods and angle nozzles are better for young trees or where leaves extend close to ground. Be very careful of the lower leaves at first spraying.

Follow first spray with another as soon as spider appears again. The time will depend largely on the thoroughness of your first spray and soil moisture conditions.

If infestation is not severe and the leaves are not covered with web, dry sulphur may be effective, applied as a dust.

A number of Sacramento Valley growers, however, state they have not been successful in getting control spray with three or four sprayings. One prune orchardist irrigated every three days during July in order to keep the soil well soaked, believing this would be more effective than either wet or dry spraying.—ALBERT J. MASON.

These French prune trees, in a low place along a ditch bank, showed good foliage and no spider injury. The ditch has overflowed regularly every summer.



Trees in same orchard almost completely defoliated by spider, just a few yards distant from healthy trees. Soil borings showed a dry soil under 2 1-2 feet. Organic matter needed to increase fertility and moisture-holding capacity.

Wire Worm Control

THE wireworm is one of California's most serious pests, states E. H. Ernst, assistant farm adviser, Los Angeles County, in reply to an inquiry from Mrs. D. H. Brunner, Long Beach. A definite economical control has not been worked out up to the present time although it has been given considerable attention by investigators.

Wireworms attack and injure practically all of our truck and field crops. The application of certain commercial fertilizers and soil amendments such as lime are of little use as insecticides. Trapping the larvae or worms with baits and poisoned vegetables is of some value where the land is extensively cultivated.

The use of calcium cyanide as a soil fumigant has given some very good results in experimental tests conducted during the past several years. This material is being tested extensively by the Bureau of Entomology in co-operation with calcium cyanide manufacturers and with farm advisers in the various counties where the pest is serious.

Farmers whose crops are suffering from the pest usually replant the damaged crops when the injury is serious. It is not unusual for beans and corn to be replanted as often as three times and even then a satisfactory stand is not always secured.

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Plan and Plant Distinctive Gardens

Adapting Local Landscape Effects to Home Plantings—Work Shou'd Be Interpretive and Constructive—Mixed Types Unsatisfactory

By RALPH D. CORNELL

Master in Landscape Architecture

RALPH D CORNELL

EVERY-DAY experiences and sights become commonplace to the average mind and lose in their value by comparison with those things considered to be rare. Once the individual is removed from his familiar surroundings, however, he is prone to recall them with a longing that produces a decided rise in the value of stock of the old home surroundings and memories.

A garden should reflect the personality and character of the person for whom it is built. It should interpret his habits of life, his occupation and the stages of development through which he has passed.

A garden also should be adapted to the conditions under which it is established, which means that it is limited in its shape, size, elevations and general treatment by the area to which it is confined and the locality in which it appears. A rock garden of alpine plants cannot successfully evolve from a flat piece of arid land exposed to a California sun. Equally incongruous is the attempt to create a desert garden of cactus in the center of a green and swimmingly wet lawn. Such attempts are encountered, however, and cry loudly for the need of advice that gardens should be works of adaptation to their setting in order that they produce a feeling of pleasure and satisfaction, because they are in harmony with their surroundings.

Again, a garden design should be progressive and constructive. Nothing should be copied exactly. It is impossible literally to transplant a garden from one setting into another. There must be constructive effort to make a garden fit its setting and meet the demands placed upon it by its new owner. Aside from this consideration, it generally happens there are poor features in the selected garden, even though it may be very fine as a whole. To copy faults indicates a lack of analytical understanding.

California has been a glorious field for the transplanting of gardens from other climes and now can display almost every garden type. This is probably due to the fact that most Californians of the present day are not native sons, but—like their gardens—have been transplanted from other climes. They bring with them the human tendency to be fond of those with which they have been familiar in the past.

WANT "BACK HOME" GARDENS

It is true our transplanted peoples are fond of California. They have been lured here by the State's peculiar charm, her distinctive landscape and climate. California gardens admittedly are beautiful, although the condition which they must endure are very different from those "back home." Nevertheless, the man from Masachusetts wants a New England house and garden, of course, with a few palms, although palms would startle the ghosts of his New England ancestors. The traveled gentleman selects from the impressions and experiences of his past and wants an Italian garden, or one inspired by the memories of the Alhambra, the Taj Mahal or the gardens of Persia. The next man may be French or English and desire that kind of a garden.

Few persons have thought of build[illegible] a California garden, because California is all about us. Her shrubs, her trees, her flowers, her atmosphere permeate everything within her borders. Therefore these things are common. We [illegible] the things about us [illegible] they are commonplace.

A[illegible] illustration of the alluring value of the exotic may be found in the fact that although in England and the warmer European countries people have been cultivating California native [illegible] for years and growing her wild-[illegible] in their gardens, yet when [illegible] people come to California they [illegible] gardens.

There is of course a place for the [illegible] of these different garden [illegible] since [illegible] offers a wider [illegible] for such indulgence than al-[illegible] other locality. In their [illegible] however they always should be [illegible] of the garden type which [illegible] local [illegible]. They should convey the [illegible] of their origin [illegible] attempt at exact re-[illegible]

[illegible] a hun-dred years ago. "Build a patio garden just like those seen in the early days of California," he commands; or, "give me a true Hopi Indian house." But he seldom would be pleased by explicit obedience to such enthusiastic demands. There was much about the old habits of life that would not be countenanced in our modern time. For example the interior patio of Spanish-California days often was a stable yard. The early houses often were insufficiently lighted, poorly ventilated and inadequate in many other ways. They would not fit in with present ideas of living.

These beautiful natural landscapes illustrate the charm of California scenery.

—Photos by Author.

It is the spirit, the quaintness, the charm we wish to perpetuate, not exact details. The same is true of our gardens. It is the spirit of the garden style that we should seek. Gardens should be interpretive, adapted to their use, constructive in conception.

In evolving a California type of garden it is not necessary to cling exclusively to native plant materials, since it is the spirit that we seek, rather than the detail. Many of our native plants are very beautiful, readily adapted to cultivation and should be frequently used. But the mere fact of a plant being indigenous to a locality is not sufficient reason for its use in decorative gardening. Many of our plant immigrants have high landscape value and are easily grown under local conditions.

The maker of a California garden should bear certain definite facts in mind. One of these is that, with few exceptions in favored localities, the plants must be able to endure occasional frosts in winter, sometimes freezes of considerable intensity and duration. Most localities undergo arid summers of relatively high temperature. The majority of shrubs must be artificially irrigated. All lawns and flower beds, excepting hardy annual and native flowers that grow during the rainy season, demand much attention and water. We cannot plant our garden and leave it to the whims of nature for its watering and care, as is possible in some Eastern and Southern States. Local conditions place very definite demands upon our gardens.

Particularly in the suburban and rural districts, where space is less limited and where the care of the garden is limited to the spare time of a busy man it would seem appropriate to co-operate with the natural elements, rather than contend against them. By selecting hardy plants and recognizing the limitations of our climate, as well as its advantages, the garden can generally be given a very comfortable [illegible] while developing character and distinction. "Happy" [illegible] at home cre-[illegible] garden than do those rare exotics which constantly hang suspended between life and death, as it were, because grown under unfavorable conditions.

The common things are often the best to plant; and by proper use and arrangement can be grouped into excellent landscape effects. If they did not occur in abundance and were difficult to cultivate we would enthusiastically seek many of the plants which we now brand as unworthy. This fact should be kept in mind in making a California garden.

A garden interpretive of its owner and our local traditions, adapted to our peculiar land formations and climate conditions and progressively constructive in its scheme arrangement, might take any of many different forms or styles of plan, and yet be typically Californian. We may have many varieties of California gardens, but all should be distinct products of the locality. In planning them the designer should be free from that slave-like copying of detail which leads to much error. Instead, he should attempt to express the spirit of that which he seeks.

Try to develop your own garden rather than copy that of some one else.

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Successful Method of Kitchen Gardening

AFTER seven years of experimenting I have developed a wonderfully successful method of back yard gardening, which I wish to pass on to other city dwellers who long for the luxury of home-grown fresh vegetables, but are unable to secure them. Let me say in the beginning to such persons that I have overcome difficulties and discouragements as great as any they possibly could have encountered.

I know by experience how heart-breaking it is to try to make garden on ground so poor and hard that it won't even produce weeds. Also, I can sympathize with those who can't afford to buy fertilizer for impoverished soil. And yet, success is possible, even under these adverse conditions.

Briefly, my method consists in fertilizing the soil in a certain way with almost every kind of available vegetable and mineral matter. It is a mistake to think that nothing but animal offal and certain chemicals will rebuild poor, worn-out soils. Nearly all kinds of decaying vegetation and minerals have fertilizing value.

Have successfully used kitchen refuse, weeds, grass, brush, trimmings from trees, vines and bushes, vegetable tops, ashes, tin cans and many other similar articles. Potato parings should be cooked, else they will sprout and grow. Eucalyptus leaves and twigs appear to injure the soil when left on top, but when buried deep are of great benefit. "Everything is grist that comes to the fertilizer mill—or compost heap"—is a good motto.

Another point to bear in mind is that the quickest results are obtained with moist green materials, as they decompose much more rapidly than dry substances. The latter will in time become available plant food, but it takes longer.

The explanation of my theory about nearly everything making good fertilizer is that the crying need of most back yard soils is not so much plant food as humus—decayed vegetable matter. This not only makes the ground friable and easy to work, with increased water-holding capacity, but helps make available whatever plant food the soil may contain.

The second feature of my method consists in the manner of applying manures and humus-making material. Instead of mixing this matter with the top soil I bury it 12 to 15 inches deep in a solid layer several inches thick. This may not agree with common theory and practice, but in my experience has given best results. The explanation probably lies in the fact that gases from the decaying material penetrate the soil above, enriching and amending it.

In making a garden bed, the soil first is spaded up to the depth mentioned and thrown aside. The compost then is spread over the bottom of the excavated area, any chicken or barn yard manure being placed on top of the other materials. Most of the dirt is thrown back and solidly tramped down, the top soil afterwards being added and left loose. Next, water is applied and then the ground is ready to plant.

Suppose you want to grow some green onions, which are very wholesome and healthful, and can be produced any month of the year in most parts of California. Dig a pit 4 feet square and 12 to 15 inches deep and put in a layer of trash and litter, such as previously described.

If you haven't any material of this kind, arrange to get some from those who make a business of hauling rubbish. Put tin cans in the bottom and the heaviest waste on top. This compost layer may be 2 to 7 inches deep. Dig another pit, filling up the first one and repeat until you have an onion bed of the required size.

After thoroughly wetting the ground and settling it over the fertilizing material and raking the top soil until it is fine, loose and level, mark off the rows. A board 6 to 10 inches wide makes a good marker and can be used to walk on while planting.

Lay board three inches from edge of bed and push the sets, roots downward, in the soil along the side of the board. Bottom sets (little onions), should be spaced about two inches apart, but multipliers should be planted four to six inches from each other. When the latter are large enough to use, cut with a knife straight down through the center of the clusters, so you can pull up half and leave the other half to multiply, pushing the soil back against the divided plant.

It is a good idea to plant multipliers next to a walk, where they will be handy to pull. On the other side of the board bottom sets may be planted. These may be used for green onions, or thinned out and left to make dry onions.

The next two rows, which should be a little farther apart than width of board, may be planted with seed. Mark these rows with a small stick drawn along the side of the board. Plant the seeds very shallow, patting the soil down firmly above them.

Seeds and sets may be planted in alternate rows, using multipliers on outside rows.

When the seed onions are as large as pencils, thin to three to five inches. The plants which are taken out may be transplanted, first cutting off the tops and ends of the roots.

Chives resemble onions and are grown for their leaves, which have a mild onion flavor. Tops may be cut off and used as needed.

The leek is another plant of the onion type. It is used in soups.

Garlic is grown the same as onions. It has a strong, musky flavor and the bulb is divided into several parts, like a multiplier onion.

Cover onion bed with half inch of sawdust. Irrigate by sprinkling, letting the water drop onto the plants gently, like rain. Never use strong spray from nozzle, as that will wash off the sawdust mulch and permit the formation of a hard crust of top soil.

Try baking onions. They are delicious when served with baked potatoes at a fish dinner. Cut open the onions, salt, pepper and butter.—MATTIE OTT KINERT.

One-acre Squab Farms

THE success of the Weeks Poultry Colony at Owensmouth (Los Angeles County) has encouraged a group of Los Angeles business men to start a similar colony at Reseda, a short distance east of Owensmouth, where conditions are similar. The main difference between the two enterprises will be that instead of chickens, pigeons will be grown at Reseda. It is not the intention to grow breeding stock, but to produce squabs for table use. A squab is considered a great delicacy, resembling quail.

T. E. Berry, who in a dozen years—starting with $2325—has built up a squab plant valued at $40,000, is to be expert adviser for the "little landers" in their squab industry. Acre farms, fully equipped with the necessary buildings and appliances, are to be sold on reasonable terms. Owners of the project agree to find a market for all good birds produced.

A model acre squab farm has been started and is attracting considerable attention from suburban poultry farmers.

Use this form—It saves delay

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Note: Forms close two weeks preceding publication.

Practical POULTRY Pointers

By W. J. DRYDEN

EARLY PULLETS LAY BEST—Another proof that the early maturing pullets make the best records is found in the experiments completed at the University of Missouri. Pullets which took more than 250 days to mature without exception did not reach the 200-egg mark. Of those which matured in less than 200 days 28 per cent laid more than 200 eggs.

POOR PULLET CROP—Like the pigeon business, the poultry industry is going through a hard period. The past brooding and hatching season has been a poor one. It is claimed the Petaluma district will only have 35 per cent of a normal pullet crop. Other districts also are affected.

This condition indicates that a better price will be secured for market eggs this year and that the day old chick business, hatching eggs and pullet sales will increase next season.

INSPECT PULLETS CAREFULLY—In moving pullets to the laying house sufficient time usually is not allowed to permit the birds to be inspected as closely as they should be. If possible the house should be ready for them several days before all the pullets are moved.

A few birds then can be gone over each day and inspected for mites, lice and ticks, a rigid culling test made and birds that show any signs of sickness or lack of vigor placed in a coop, where they can be watched or doctored if necessary.

By following this method it is possible to eliminate much of the danger of contagious diseases.

HOW TO FEED GREENS—A chicken should eat as much green feed by weight as it does grains. In order to get them to eat this required amount it may be necessary to resort to various methods of feeding. The greens should be fed when the chickens are hungry, not after a grain or mash feeding. If feeding a wet mash, the greens may be chopped and fed in the mash. If the greens are placed in a green feed hopper the chickens will eat more than if they are scattered on the ground.

BE KIND TO BROODY HENS—Kindness pays in the chicken business, as in any other branch of animal husbandry. The broody hen should receive the best of attention. Lack of feed and uncomfortable surroundings will keep her broody. The best way to force a broody hen to start laying again is to tempt her appetite. Give plenty of greens and water and place her in a well constructed coop where she can not make a nest.

CULL THE EARLY MOLTERS—It is now about time for the molting season to begin and for the poor layers to start to molt. Cull out the early molters as they are the [illegible] layers.

WATCH FOR SIGNS OF DISEASE—Once a disease starts in the flock during the hot summer months, it will soon gain great headway. It is more important to watch the flock during hot weather than at any other time of year.

GET RID OF EXCESS COCKERELS—There is no better time than the present to kill or market the [illegible] which will not be used in breeding [illegible] season. It will give your [illegible] better chance to grow [illegible] on the feed bill, and [illegible] can be secured now than later [illegible]

SHADE IMPORTANT CONSIDERATION—Most poultry[illegible] will find it to their advantage to [illegible] shade shelter in their yards. Th[illegible] be done by stretching [illegible] frames or putting [illegible] straw [illegible] the shelter.

CHICKS COST 29-64 CENTS—O[illegible] California poultrym[illegible] chicks to eight weeks old fo[illegible] while another [illegible] cost [illegible] than 64 cents. In [illegible] feed and overhead [illegible] The 64 cent chicks [illegible] paying for a lot of [illegible] overhead.

City and Country Pull Together

What the Los Angeles Chamber of Commerce Is Doing For and With Farmers

(Editor's Note: This is the fourth of a series of articles on co-operation between city and country. The fifth will be published in an early issue.)

THE entire movement to bring into juxtaposition farming and business interests is comparatively new, and here in California it has been carried further no doubt than in any other State.

This development owes much of its significance to the work of one man, whose interesting personality has reached out beyond the confines of his own organization—the Los Angeles Chamber of Commerce—into all of Southern California. This is Dr. George P. Clements.

Recently Doctor Clements presided over a conference of agricultural leaders from as far north as the San Joaquin Valley and from all parts of the Southland, at which was formulated an Advisory Council for agriculture. The purpose of this council is to place at the disposal of the farmers (particularly newcomers) in every community the services of an expert, and to foster the sound and profitable development of agriculture.

"This does not mean there will be any interference with the functions of the Farm Bureau or the Agricultural Extension Service," Clements points out.

"In fact, as in the past, we shall co-operate very closely in every way with these organizations. Our purpose is primarily to see that the newcomer gets started right; the Farm Bureau will help him 'stay right' after he is once established.

PROPER DIRECTION ESSENTIAL

"The time has arrived," declares Doctor Clements, "when further California settlement should be selective rather than general, and the great influx of high type of citizenship at present coming into the State makes it not only possible, but through such an advisory council, simply a matter of direction."

The first move of the council was to make a survey of the various counties as to the incoming citizens. They will be advised and directed to the district of their choice, then made acquainted with the advisory committeeman in that district for further information. The survey is under the direction of J. B. Vaile.

Over two-score of prominent men connected with agriculture activities throughout this section were named on the council. Among them are: C. S. Whitcomb, Glendora; J. A. McNaughton, manager Los Angeles Union Stock Yards; F. J. Hagenbarth, president National Wool Growers' Association; Carlyle Thorpe, chairman California Walnut Growers' Association; B. K. Dickson, chairman Bakersfield Civic Commercial Association, and W. J. Higdon, chairman, Tulare Board of Trade.

When Doctor Clements first came to the Los Angeles Chamber seven years ago at the instance of Secretary Wiggins, he found few of the members thinking in terms of agriculture. He immediately determined, therefore, to erect the "bridge" which should close the gap between the farmer and the city business man.

His theory was that any farmer who is properly settled in California, according to his means and inclinations, is certain to succeed under direction of the Farm Bureau and Extension Service. He realized that real estate dealers do not always have at heart the best interests of the new settler and also that the Chamber of Commerce is the logical place for him to ask for information.

CO-OPERATING WITH TOWNS

Consequently the first endeavor of the agricultural department of the Los Angeles Chamber of Commerce was to supply this need. Doctor Clements' department, however, soon had to [illegible] take care of the growing [illegible] upon it until today it em[illegible] besides [illegible] noted is now af[illegible] with the [illegible] or a[illegible] of the '[illegible] country."

[illegible] all the inquiries [illegible] Doctor Clements, [illegible] to [illegible] the various [illegible] [illegible] until he [illegible] in [illegible] of the Cham[illegible] We [illegible] any

such applicant free of charge, except cost of transportation."

That no serious friction has existed between the Farm Bureau and the Los Angeles Chamber is conceded by officials of both; one supplements the work of the other and they "pull together" for the general welfare of agriculture. Doctor Clements, in fact, is a director of the Los Angeles County Farm Bureau.

The growth of Clements' department is indicated by the following summary of additional topics and activities, furnished by Howard A. Miller, Doctor Clements' assistant:

Formation of a Citizens' Emergency Committee during foot-and-mouth disease epidemic and assistance in securing legislation for enforcement of emergency regulations.

A survey of water conditions of the Antelope Valley.

Study of power rates for farms.

The "tying-in" of back country to Los Angeles as a market.

The investigation of agricultural and economic conditions in Mexico.

The adjustment of Indian questions.

Reapportionment.

Better marketing conditions for deciduous fruits.

Drainage of some of our waterlogged soils.

Expositions of California products.

Development of industries making use of California-grown products, including woolen plants and cotton mills.

Dehydration studios.

NUMEROUS PROJECTS ASSISTED

A survey of the water supply and the development of a conservation program in connection therewith.

Formation of Conservation Committee embracing all those agencies in Los Angeles and vicinity which are interested in the maintaining of our trees and forests, and brush lands, and thereby the water supply.

Work with livestock clubs of Southern California.

Conducting livestock judging contests.

Working toward the betterment of the market for California's beef, mutton and pork.

The betterment of sanitary conditions of our dairy products.

Agricultural education.

Development of inter-relations between this and foreign countries in connection with highly improved methods of production and extended markets.

All of this is in addition to the gathering and compiling of a great amount of statistical information pertaining to agricultural and livestock production of Los Angeles County and other districts, even world figures.

Both the Agricultural Department in the Chamber and the Agricultural Committee have served to gather information and facts concerning the different problems considered. These facts have been presented through the committee to the Board of Directors and definite recommendations made and definite action taken.

"The question of water conservation has been one of primary importance with us as it is to all of California," says Miller. "We have co-operated with the San Gabriel and the San Fernando Valley Chambers of Commerce and the Water Users' Association in the development of the program which has just been put into effect through voting the $35,000,000 bond issue by Los Angeles County.

VARIED, VALUABLE ACTIVITIES

"The Conservation Committee mentioned above has had to do with fire prevention, reforestation and kindred subjects, which are most important if our water shed is to continue to be helpful in holding water, getting it into underground channels and making it available for agricultural usage.

"This office had charge of arrangements for the summer school work given by the University of California this last year in livestock judging, and furthermore directed the Southern California final contests at Riverside as well as the Junior Fair at Pomona. It has been instrumental, as a member of a committee, in securing calves for Boys' Club work, and seeing that proper relationships were effected between the boy purchasers and those who sold the animals.

"The question of quarantines has come before the department a number of times, and our co-operation has been solicited by State and Federal authorities in helping to protect California against injurious insects.

"The above does not constitute a full resume of the activities engaged in by the Agricultural Department of the Chamber of Commerce," concludes Miller, "but is more a citation of instances of our work."

HOME FARM HAPPENINGS

By ONE OF US

CONSTANT IRRIGATION PAYS—No accurate tests have been made, but John figures that by running the irrigation pumps night and day this season, three times as much is being accomplished as when the pumps are operated only 12 to 14 hours of the 24.

W. S. GUILFORD

Whenever an irrigation stream is shut off for a few hours, considerable time is required to get the soil, already wet, soaked again to the point reached at the time the water was shut off. During the day, the irrigators get some big checks ready to hold the water pumped during the night. Bigger, higher and wider checks have been put up this season than ever before. This makes less hand shoveling necessary and a more satisfactory job of irrigation possible.

THE BEST AND THE POOREST—This year there is some of the best barley in the Sacramento Valley that has ever been grown here—say grain authorities—and, of course, a considerable acreage that is a total failure.

Dave Stuart of Sacramento, who handles an immense acreage of grain insurance, tells me that Ennis, Brown & Company have some of the best barley in District 1660—across the river and south of Grimes—that he has ever seen.

It is estimated to yield from 50 to 60 sacks to the acre—a perfect stand with immense heads and exceptionally big, plump kernels.

The land on which it is raised has grown beans for the past four or five years.

MUST LICENSE TRAILERS—For not having a license on his trailer, one of our neighbors recently was arrested by a traffic officer and had to pay a fine of $50.

A lot of folks up this way have felt that little farm trailers that are used about the same as a wagon were a kind of farm equipment rather than road going, taxable vehicles.

But Will Marsh, chief of the division of motor vehicles, says the law is different—so we have to have license plates for the trailers.

Licenses for little two-wheel trailers with pneumatic tires costs $3; bigger ones $8. When the trailers are home made and have no manufacturer's number the department assigns a number, which must be stamped on the trailer and notice that this has been done returned to the department.

JIM MARSHALL'S BARN—It will pay any one who has to handle sheep to go to Davis and see Jim Marshall's barn and corrals. They are the handiest and best I have ever seen anywhere.

Hay is cut and blown into the mow, whence it is put through chutes into racks. Practically all of the hay is eaten—the least waste I have ever seen in a barn.

There are panels and gates that permit dividing the alleys and runs and areas between the feed racks, and little pens along one side for ewes and lambs.

Alongside the barn is a system of pens and a simple but effective dodge gate for sorting. One man can do as much work around this barn as two or more on many other places.

And Jim has a wonderful flock of sheep, Shropshires, the big kind that Dean Coffey of Minnesota likes. Mostly imported rams have been used on this flock for over 20 years.

HOG WALLOWS AND LICE—"When the hogs have a good wallow, I don't believe they will need to be dipped in oil so often," said John one day when it was suggested that it had been three or four weeks since the hogs had been put through the oil vat.

"Well, let's take a look and see." And there were plenty of lice—big, blood-sucking ticks, and hundreds of eggs stuck on the hair back of the ears, in the fore and rear flanks and between the hind legs.

It looks as though the safe thing to do is to put hogs through a dipping vat every two weeks if feeding good hog feed to lice and ticks is to be avoided. In summer the hogs will oil themselves if oil is poured on a pool of water.

PRUNING AND OTHER FACTORS—As you ride through the wonderful orchard section along the Sacramento River from Redding to Anderson, Red Bluff, Corning, Hamilton City, Butte City, Colusa, Sacramento, Courtland, Walnut Grove and down to Rio Vista, you cannot help but be impressed with the fact that soil and water are much more vital factors in fruit production than pruning and methods of cultivation.

You see all kinds of pruning, long and short and thick and thin. And every kind of cultivation from a garden mulch to a sod. But where the soil is the rich, alluvial silt that is found along the Sacramento River and ample water is provided, there are abundant crops!

TAILS TOO SHORT—It has been our custom to cut the tails from the registered lambs very short. This makes less possibility of manure hanging to them when they scour on green grass or other feed, and most folks think they look better.

Along toward the last of the season this year, however, we have been cutting the tails from one inch to two inches long on account of the added trouble from fly blow and maggots when the tail is burned off right close to the body.

The big, fat tails that are full of blood are the worst. It seems almost impossible to get some of these seared off with the hot chisel slow enough to prevent bleeding and to make a wound that will heal quickly.

MOST REMARKABLE OFFER

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This glass is beautifully finished, all metal parts nickel plated; covered with fine quality imitation leather, is 3½ inches extended and 2¼ inches when closed, and is equipped with powerful lenses, which will enable you to see objects miles away. Most useful for camping, hunting or distinguishing livestock out in the pasture. Use it also as an opera glass for movies or opera. Comes in a beautiful plush-lined presentation case. Special advertising price $1.75, while supply lasts.

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Investors Daily Guide, S. W. Branch, Dept. M-39
1016 Baltimore Ave., Kansas City, Mo.

Radio on the Farm— VI — Assists Co-operation

By DR. RALPH L. POWER
"The Sky Crier," Los Angeles Examiner Radio Studio

DESPITE apparent setbacks in the field of co-operative marketing, particularly in California within recent months, there are many who believe that co-operative marketing has not been given a real trial, which should extend over a period of years through normal times.

DR. RALPH L. POWER

It is certainly true that there is nothing in the farm field more impressive to the outsider than the extension of co-operative action in recent years. Just as common interest is a powerful motive in co-operation, so the dissemination of information and the maintenance of contact by means of radio are conditions which make the promotion of common interest possible.

Farm bureaus now are established in most of the agricultural counties in the States where agriculture is an important industry. Information broadcast for such bureaus would travel with the speed of light to individual members. One State has more than two hundred Grange halls, which could be utilized for receiving stations.

The possibilites of broadcasting—or "radiocasting," as some persons prefer to call it nowadays—is practically limitless in the field of farmers' organizations.

A recent country-wide survey by a large organization shows the head of a co-operative group of farm papers has figured the territory served by his publications includes more than 5000 grain elevators and practically the same number of livestock shipping associations. The idea immediately suggests itself that every grain elevator in the region ought to maintain a receiving set in its office for business reasons, and the same is equally true of the livestock shipping organizations.

General information relating directing to farming interests are broadcast at various times during the programs of 105 radio sending stations in different parts of the country, according to the latest available figures.

One hundred and fifty thousand students are enrolled in our State colleges of agriculture and the farm population of the United States comprises at least 30,000,000 people. The disparity between these two totals reveals the possibility of the use of radio for extending the scope of agricultural education.

Outside of ocean travelers radio easily is proving more useful to the rural population than to any other class of people. It does away with the feeling of isolation and furnishes entertainment and information in such a way the average farmer doesn't feel he is wasting valuable time "listening in." I doubt if any invention, outside of printing, promises to become of such widespread economic importance as radio.

Instruction via radio is not a panacea for all ills. Such work is slower than residence or extension classes and the more advanced instruction hardly could be undertaken in this manner. Yet, through radio, thousands of farming people are potential students and the State colleges are fast recognizing this fact.

HELPING HOME STUDY

Radio will reach those whom residence classes never can reach, as well as hundreds who have a ground work through a year or so at college, or through extension and correspondence study.

Home study courses can and will be given with the supplemental aid of radio. Outlines will be furnished in advance and students will have their lessons prepared. With their books before them and their individual charts and maps the instructor can perform superior service.

There was a time when the out of doors work of productive labor, good food and comfortable living conditions of the country were not enough to offset the cultural advantages of the city with its lectures, music and access to the news of the world. Those who left the farm did so to secure the things which the city man had and the country cousin had not. The term "rural" did not suggest country charm, but rather limitation of cultural opportunity. Radio has changed this, supplying the farmer with many things previously lacking.

The isolation of the seas has been dispelled by radio and it now links the ends of the earth together. It not only attunes every city dwelling with the outside world, but brings—as I have mentioned before in this column—the outside world to the folks on the farm, whether the farm be way down East, in the Middle West, or on the Pacific Slope.

RADIO PAYS FARM DEBT

Today's broadcasting is the universal voice of modern civilization, with great power and influence. Almost over night we have a gigantic industry organized and hard at work. The United States now has nearly 600 broadcast stations, 3000 radio manufacturers, 300,000 radio workers and employees. In 1923 20,000 radio dealers distributed to the public $150,000,000 worth of radio supplies and equipment, while nearly 1200 newspapers carry radio programs and radio news columns.

Radio is the one agency which can pay its debt to the farmer by bringing to his home all the advantages and none of the disadvantages of the city. An authority has recently stated that radio's greatest contribution lies not so much in what it does for the city dweller, but upon the influences it can bring to the life and action of our suburban population.

The imagination of agricultural colleges and extension services has been fired through radio development and one educator has just made a worth while suggestion that a radio wave length be allocated to the farmer for his exclusive use.

If tractors, automobiles and radio had been on the farm a few years ago there would be no need of a "back to the farm movement" today.

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Body of dress fashioned from soft, sheer, genuine Tussah Silk—a most beautiful material. The wide, generous yoke is of elegant silk Spanish lace, the rage of the hour! A wide band of this same beauteous lace is also all around skirt near bottom. At waist is narrow self material girdle, with rich rosette of white lace run through with silk ribbon drop in contrasting color—a clever touch. Newest wing sleeves. This bewitching gown drapes beautifully. Suitable for day or evening wear—it will be your "dress up" frock. A saving of half if ordered now.

No Money Now—pay on arrival only $3.98 and postage. If not delighted after try-on, return by insured mail and get your money back. COLORS: Black or Brown or Navy Blue. SIZES: Women's 32 to 46 bust; Misses' 14 to 22 years.

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Preventing Erosion Hillside Terraces

THE planting of fruit trees on steep hillside terraces is on the increase in Southern California, chiefly on account of greater immunity from frosts and partly from the desire to develop groves on hillsides immediately adjoining beautiful building sites.

In building a terrace the gradient is changed so that part of the land is level and the rest is left much steeper than it was before. The terrace banks which are too steep for cultivation are subject to erosion and on some soil types present a serious problem.

If they are neglected they become covered with weeds, which rob the trees of moisture and plant food. To hoe terraces by hand even once a year is very expensive. What is needed is some low, creeping perennial plant to act as a ground cover, prevent erosion in winter and displace weeds in summer.

Mesembryanthemum roseum, sometimes called "ice moss," is used on lemon terraces at the Limoneira ranch, near Santa Paula. Mr Cuelbertson assistant manager, states that they have had more than ten years experience with this plant and find it fairly satisfactory.

As a ground cover it is ideal, forming a thick mat, which easily drapes itself to the bottom of the bank. While it uses some water, its moisture requirements probably are less than those of weeds. This plant easily is established from cuttings and once well started requires little or no attention. In the spring it is covered with purple bloom, which for a short time is highly ornamental. The only objection seems to be that it finally becomes sufficiently thick to obscure gophers and squirrel signs.

It has been suggested that [illegible] which is often used in place of grass as a lawn plant, might serve on terrace banks equally well. It is easily started from slips and does not form such a thick mat. Either of these plants can be easily destroyed if desired. [illegible] succeed best near the coast and [illegible] adaptable to avocado and citrus terraces.—J. ELIOT COIT

Milkmaids Prepare for Stockton Fair

THE dairy industry will be featured at the San Joaquin County fair, to be held at Stockton, August 21-27. The Manteca community is preparing a special dairy booth and arrangements have been made to install a miniature creamery, which will produce real butter and cheese every day of the fair.

The San Joaquin Fair is one of the big agricultural events of Central California, representing, as it does, one of the richest farming districts in the United States. Fifty-four thousand acres of alfalfa furnish feed for 27,000 dairy cattle, which produce 12,000,000 gallons of milk annually. From this enormous amount of lacteal fluid there is produced 4,000,000 pounds of butter fat, 500 tons of cheese and enough cream for a billion cups of coffee.

Which of these pretty milkmaids would you pick for a winner at the San Joaquin Fair milking contest? They are real, honest-to-goodness dairy maids and "know their stuff" as well as any movie star.

What Texas Thinks of California

(Continued From Page Five)

directors from the various districts or affiliated locals is necessary.

Large enough salaries should be paid to insure capable management; yet the members should avoid the common mistake of thinking that simply because a man receives a high salary, he is necessarily qualified for the job.

The visitor was much impressed by our achievements in marketing and advertising California farm products, and especially in the difficulties overcome by some of our organizations.

With Texas entering into increasingly heavy production of perishables, this keen observer sees the inestimable value of the advertising and publicity which have linked California in the minds of millions of Eastern consumers with quality and flavor in our products.

He was impressed also by the efforts of our State Department of Agriculture and leading growers' organization, to standardize and maintain the quality so as to take full advantage of the demand created by advertising and thus retain the confidence of the consumer.

"It would not take long to nullify the effects of publicity by laxity in your inspection, grading, packing and careful cultural methods," he pointed out.

Texas is a real or potential competitor of California in many products, such as winter vegetables and figs, the latter being largely of varieties [illegible] for preserving and canning.

Texas grapefruit, in the [illegible] of this authority, excels the famous Florida product and a very large percentage of the present production is [illegible] by mail to the fancy box trade.

Mr. Richardson is a native of the Lone Star State and was formerly a member of the Agricultural Extension Service. He is serving on the State Board of Plant Breeder Examiners which deals largely with [illegible] dealers, and has held a [illegible] other public offices.

ORCHARD and FARM hopes to publish some of his conclusions after he has had time to correlate the amount of data acquired during his travels.

The visitor was amused to find the five, ten and twenty acre places called "ranches." In Texas a "ranch" is a large farm devoted largely to live stock raising.

"I could spend a year in California and then only hit the high spots," laughed the veteran farm [illegible] erer. "One thing our States [illegible] have in common is great open spaces and distances between [illegible] I have spent about half [illegible] ting from here to there [illegible] and would have spent more [illegible] not been for the kindness and [illegible] ness of your agricultural leaders all of whom I am deeply [illegible]

Packing San Joaquin Cherry Crop Mechanically

By VERNE SCOGGINS

MEMBERS of the San Joaquin County Cherry Growers' Association during the past few years have revolutionized many old ideas of handling cherries. For years it was the custom to ship cherries to Eastern markets by fast express. The Association has gained splendid results by pre-cooling its fruit and shipping by freight. The president, who owns one of the largest bearing orchards in the State, invented a mechanical method of handling and packing cherries in the shed which upset old ideas of hand-packing. The association this season installed machinery to stem and pit cherries and prepare them for packing and freezing in barrels for the winter pie trade. These are the outstanding achievements of the association, but there are a number of other activities it has sponsored which have been a real benefit to members. Fruit is marketed under the Eskimo brand and an expert is maintained to pass on all packs in Stockton, where the pre-cooling is done. The state crews compiled and enforced by the association have done much to popularize its brand and are now recommended by the State Department of Agriculture.

The association has 18 members, who own 450 acres of bearing cherry trees. So strong has been the observance of association regulations that the Eskimo brand has become favor with buyers in preference to all the big packers' brands and has or has not if [illegible] was established last season. As [illegible] the association is [illegible] at all stations and cherry quality at all times.

Much of the credit for the development of new ideas belongs to A. B. Haslacker, president of the organization. His 90-acre orchard near Farmington is claimed to be the largest bearing cherry grove in California. It is on the Haslacker place the association has located most of its revolutionary machinery.

Meeting the harvest rush year after year with a realization that the lowering of labor costs and saving of time is the greatest assurance of profit, has caused many farmers to make an earnest effort to develop new methods. Such was the case with Haslacker. Handling the crop from a 90-acre bearing orchard within a period of a few weeks furnished the incentive for seeking efficiency. The old custom of hand packing the crop was the biggest job and it was this problem he tackled first.

After three years of experimenting last year Haslacker handled and packed his entire crop with a mechanical device of his own invention. So successfully did it operate and so well was the new pack received that another member of the association, Dr. F. A. McCan, installed a similar outfit before the season ended. This year both men used the new cherry packer and other growers now are considering making a similar investment.

Haslacker does not recommend his method of packing for small orchardists who can afford the time needed for hand packing, but for growers who have large acreages to harvest he considers it a "life saver." While his method of packing does not make as pretty and orderly a pack as one prepared by hand, it saves time and gives the consumer a product entirely even in quality. The cherries arrive from the field in buckets. From the unloading platform the pails are transferred to a conveyor and are carried to a man who empties the fruit into a hopper, automatically shaken. The bottom of the hopper is made of canvas, to prevent the cherries from being bruised, and is sloped so the fruit will roll to one end.

The hopper is divided into several sections by brushes set at just the right height to touch the fruit as it slides along from the canvas. By this contrivance the fruit is cleaned without being handled by employees. At the lower end of the hopper a powerful electric fan blows out the leaves and dirt.

When the cherries come out of the hopper they roll onto a wide, revolving belt. Girls seated on either side pick out green, undersized and other undesirable specimens and place them on small beltways on either side of the large one.

At the end of the wide beltway is a packing box, into which the cherries are allowed to roll. One employee spreads the cherries evenly as they roll into the box and removes the filled boxes. At the end of the two smaller beltways are large boxes to catch the culls.

When the packing box is filled with 14 pounds of cherries which have rolled off the beltway it is removed and pushed onto a conveyor which carries it to a weigher.

The box next is pushed a few inches and once more started on its way. Its next stop is at the "lidders'" table, where—following inspection — it is made ready for checking and shipping. The bottom of the box is nailed on last, for it is packed upside down. On the inner sides of the box paper has been pasted so that it laps half way over what was the bottom of the empty box.

When the packed box is opened the cherries are covered with paper and present a much evener appearance than those on the other side.

Despite the use of this labor-and-time-saving device Haslacker finds it necessary to employ 175 persons during the peak of the cherry harvest.

The equipment for stemming and pitting cherries and the idea of packing and freezing them in barrels is a comparatively new practice on the Pacific Coast. Prof. E. L. Overholser of the pomology division, University of California, has been experimenting with several varieties of cherries under different storage conditions and has been successful in keeping fresh fruit three years at low temperature. His investigations did much to influence the San Joaquin Association to develop their preserving plans.

The equipment for pitting and stemming cherries in preparation for the pie trade was not used extensively this season, because it has not yet been sufficiently developed for handling large quantities of fruit. Royal Anns chiefly were used in the few hundred barrels packed.

Haslacker says the mixing of [illegible] Anns with the Montmorencies [illegible] of the mid-Western States [illegible] usually fine pie "timber" [illegible] hundred pounds of cherries [illegible] and dried on his place [illegible] order to determine their [illegible] filling.

Cherry picking scene in A. B. Haslacker's 90-acre grove, said to be the largest orchard of its kind in the country. It is located near Farmington. Little trouble was experienced in solving cultural and harvesting problems, but getting the crop hand-packed was very difficult.

Haslacker succeeded in eliminating much hand labor by perfecting a mechaical device for packing cherries, proving that "necessity is the mother of invention." Dr. F. A. McCan also uses a mechanical packer and other San Joaquin growers contemplate installing this valuable labor saver.

These machines stem and pit cherries for the bulk trade. The fruit is frozen and packed in barrels, in which shipments are made to distant markets. In mid-Western States Royal Annes—which are prepared in this manner—are mixed with Montmorencies for "pie timber."

Loading boxes of packed cherries. The San Joaquin County Cherry Growers Association has 18 members, who own 450 acres of bearing trees. Fruit is marketed under the Eskimo brand and all of it is inspected at the Stockton pre-cooling plant. One grower employs 175 persons during harvest season.

FURNISHING FARM HOMES

Beauty and Comfort in Country Residences

THESE interior views of Imperial County country homes show that this region longer is regarded as a place of temporary residence. Bonanza farming is givin way to a permanent system of agriculture, while the soil robber is being displaced b dairymen, fruit growers and other producers who are building for the future, rath than taking the largest possible present profits.

Much of the improvement and beautification of farm homes in this "Barbara Wor Land" is due to the efficient and energetic efforts of Miss Orpha A. Miller, home der onstration agent of the Extension Service. During the past year home furnishir project work was carried on in 60 homes in the county.

"These homes represent every type of farm house in the Imperial Valley," explai Miss Miller. "All the owners have made an honest effort to improve their environme by making as attractive and comfortable as possible the houses in which the futu citizens of the county now are forming their boy-and-girl ideals."

The farm women and their husbands, assisted by the Extension Service, have st di house planning; ceiling, wall and floor finish; furniture renovation; window and do draping and proper accessories for each room. They found that a small amount material used for some built-in equipment and the right color of paint—accompani by good, distinctive pattern cretonnes—completely changed the appearance of the hou as well as added to the happiness of the family.

"I am almost afraid to go on a vacation this summer," confessed several housewiv to the demonstration agent, "for fear something will happen to my pretty house wh I am gone."

Such remarks show how well satisfied Imperial farmers' wives are with the ho furnishing work they have been doing.

Economy, convenience and good taste are the prime considerations in this wor The average woman likes nothing better than a bargain and is reluctant to ask t head of the house for any more money than is absolutely necessary to buy home f nishings—however richly she may deserve them.

Making the best possible use of the materials at hand is one of the keynotes Miss Miller's work. In the living room, shown below, the small bookcase in the corn was made from leftover material and plasterboard. The corner cupboard (shown at le was constructed in the same manner.

The plasterboard wall of the living room is painted with light, cool, gray, washa wall paint, with a cream ceiling. The floor is varnished light oak color. The bats a painted same as ceiling or side wall, in order to give the room a more restful appearanc Large mesh filet net is used at the windows to let in plenty of light.

Above—This kitchen has green-gray walls and woodwork. The corner cupboard solves the problem of more cupboard space. Right—The color scheme of this living room is blue and gray, with touches of rose.

Left—The living porch as it appears during the summer months, separated from the sleeping porch by cretonne-covered window screen frames hinged together.

Right—Dining room. Previously this was a very dark room, with tan walls, dark bats and woodwork. It now is done in washable wall paint, with the side-walls of light sage green, with the ceiling and border of cream-gray woodwork. Net curtains are used on the inside of the buffet doors. French doors open onto large screen porch. Linoleum rug on floor.